DOCUMENT RESUME

ED 205 924 CS 006 223

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TITLE Situational Variation in the Use of Internal State Words. Technical Report No. 212.
INSTITUTION Bolt, Beranek and Newman, Inc., Cambridge, Mass.; Illinois Univ., Urbana. Center for the Study of Reading.
SPONS AGENCY National Inst. of Education (ED), Washington, D.C.
PUB DATE Aug 81
CONTRACT 400-76-0116
NOTE 216p.

EDRS PRICE MF01/PC09 Plus Postage.
DESCRIPTORS Black Youth; Cognitive Processes; Cultural Differences; *Educational Environment; *Environmental Influences; Family Environment; *Language Processing; *Language Research; *Language Variation; *Minority Group Children; Preschool Children; Readiness; Socioeconomic Influences
IDENTIFIERS *Schemata

ABSTRACT

A study tested the hypothesis that educational differences experienced by children from minority and nonmainstream cultural backgrounds are caused by the discrepancy between the expectations, strategies, and schemata used at home and the cognitive and motivational demands of the classroom--a discrepancy not experienced by children from the mainstream culture. The study examined the cultural and situational differences in one aspect of communication: the use of internal report, or words used to refer to internal states, processes, or experiences. Conversations produced by 39 preschool children from different socioeconomic and racial backgrounds were recorded in two different situations--dinnertime at home and during teacher directed activity at preschool. The conversations produced a complex picture concerning the use of internal report. Although few effects of race or socioeconomic status were found in the internal report use by the adults in the target children's environment, the internal report use by the black children gave some support to the hypothesis under investigation. (FL)

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CENTER FOR THE STUDY OF READING

Technical Report No. 212

SITUATIONAL VARIATION IN THE USE OF INTERNAL STATE WORDS

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August 1981

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The research on which this paper is based was supported by a grant from the Carnegie Corporation of New York. The preparation of this manuscript was supported by the National Institute of Education under Contract No. HEW-NIE-C-400-76-0116.

CS006223

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Abstract

This paper presents data on situational variation in the use of words of internal report. The research involved the analysis of conversations produced by 39 children between the ages of 4½ to 5 years from different socioeconomic and racial backgrounds. Data from two different situations--dinnertime at home and teacher-directed activity at preschool--were used.

It is argued that the use of internal state words is crucially linked to cognitive strategies in three related areas: The acquisition and organization of internal state concepts; the understanding of stories and discussion of stories in the classroom; and metacognitive skills. Thus, certain types of internal state word usage will correlate with skill in metacognitive processes, and hence with the child's degree of readiness for, and success in, school.

The current research tested some specific hypotheses about situational and social variation in internal state word usage, which fall under the general heading of the "mismatch hypothesis." This hypothesis postulates that educational difficulties experienced by children from minority or non-mainstream backgrounds are caused by the fact that for these children, there is a discontinuity between the home and school environments--that is, a discrepancy between the expectations, strategies, and schemata that work at home and the cognitive and motivational demands of the classroom. For children of the mainstream culture, on the other hand, there is a fair degree of continuity between home and school in terms of culture, patterns

of language use and behavior, and types of strategies for interacting with adults.

A complex picture emerged concerning the use of internal state words. Although very few effects of race or socioeconomic status were found in the internal state word use of the adults in the target children's environment, the internal state word use of the black children gave some evidence that these children did experience a mismatch between the home and school environments. However, the mismatch was not in the internal state word use of the adults, but rather, appeared to involve a discrepancy between the patterns of adult-child interaction and communication in the home and school environments of the black children.

Situational Variation in the Use of Internal State Words

There is a long tradition in cognitive social science linking language and thought. A more recent tradition in social science research links language functioning and use to schooling. Differences in patterns of language use may reflect or embody differences in how communicative or cognitive strategies are brought to bear on specific types of tasks in specific situations. The purpose of the present paper is to describe cultural and situational differences in one aspect of communication: the use of words of internal report, or internal state words. These are words which when used literally refer primarily to internal states, processes, or experiences. This includes words about cognition (think, remember, know), emotions (happy, afraid, love), perception (see, smell, pain), and intentions and desires (intend, want, wish). Internal state words have both educational and cognitive significance; they play an important role in certain types of classroom discussion, and their use is linked to cognitive strategies and skills involved in metacognition. The cultural differences we investigated are those associated with socioeconomic status (SES) and race in an urban environment.

The specific focus of research is on situational variation in the use of internal state words--how situational factors such as the roles and activities of the speakers shape the use of these words. We are also interested in the way that differences between the home and school situations may influence the child's use of internal state words at school. At issue is what cultural differences there may be in the way that children's

internal state word use is influenced by situational factors at home and school, and what educational consequences such cultural differences may have.

Situational Variation

Concurrent with increasing interest in language differences between individuals of various social groups has come a growing focus on differences in the speech of the same individual in different situations. An early study by Labov (1964) illustrates very well some important aspects of the interaction between situational and social variation. Figure 1 represents differences in the pronunciation of /r/ by speakers from different socio-economic levels, at different levels of formality.

Insert Figure 1 about here.

There are four particular aspects of the situation represented by this figure that we wish to draw attention to:

1. Both the situational and social differences are quantitative rather than qualitative; they manifest themselves in terms of the percentage of the time that a certain pronunciation is used. This does not mean that there cannot be some social or situational differences that are qualitative; however, much of such variation will consist in the relative frequency with which a certain form or pattern occurs.

2. Note that the most careful speech of the lowest group in Labov's study shows more r-constriction than the casual speech of even the upper

middle-class group. Thus there is in some sense a real "overlap" between the speech patterns of even the extreme ends of the social scale. This is of course not necessarily the case with all instances of social and situational variation; but in many instances, such variation will be one of degree, with much overlap between the patterns of different groups, rather than consisting of qualitative and absolute differences.

3. Note that in this case the situational differences are as large as the social differences. The magnitude of differences between the speech styles of a single social group in different situations is the same as, or greater than, that of the difference between different social groups at any one given level of formality. Again, this is not necessarily the case; there may be instances where social variation in language patterns is far greater than any situational variation within the social group. However, situational variation is at least potentially as great as social variation, and therefore, both must be taken into account in any study of variation--a point which we will return to shortly.

4. Note that there are differences in the way that different social groups respond to a given situation. In this case, all groups show a similar pattern, using a higher percentage of r-constriction in more formal circumstances--but the lower middle-class group shows a much more extreme difference in this regard than any of the other groups. It has been suggested that this is due to the uncertainty of being the second-highest group; the lower middle-class speakers, when in a formal situation, outdo the upper middle-class speakers in trying to sound upper middle-class (cf. Labov, 1964).

The example above involved variation in phonology. However, the same social and situational factors that influence pronunciation (e.g., the age, sex, social class, mood and personality of the speaker; the role and status of the addressee; the formality and the topic of the conversation) play a role in variation in syntax, vocabulary, and all other levels of linguistic patterning.

Cole, Dore, Hall, and Dowley (1978) document some of the more specific effects that situational variation can produce. In comparing the speech of young children in a supermarket and in the classroom, they found differences both in the frequencies of various speech act types, and in the complexity of the utterances in certain speech act categories. Different speech act types also showed variation in different directions. For one group of three-year-olds, they found that the Descriptions produced in the supermarket were shorter than those produced in the classroom. However, the overall Mean Length of Utterance (MLU) for this group was greater in the supermarket than in the classroom, since the children's speech in the supermarket contained a much higher percentage of Descriptions, which were the longest and most complex speech act type. This clearly shows how specific the effects of situational variation can be, and how overall measures like MLU may fail to capture significant dimensions of variation in children's speech.

Martlew, Connolly, and McCleod (1978), investigating the speech of a five-year-old in three different situations (alone, with a friend, and

with the mother) found substantial variation, both in syntactic complexity (the child used far more six-word or longer utterances with the mother than alone or playing with a friend) and in speech act types (the child used more commands alone than with the mother; presumably it used commands more often when taking on the adult role in the discourse).

The four points mentioned in regard to phonological variation in the example from Labov are also found to apply to nonphonological variation as well. Variation in other aspects of linguistic patterning may be quantitative rather than qualitative, and there may be substantial overlap between groups; situational variation may be of the same magnitude as, or even greater than, social-class-based variation; and different social groups may manifest different patterns of situational variation.

This is crucial to the study of social variation in language patterns in a number of ways. First of all, there may be genuine social-class based differences in language that appear in some situations and not in others. For example, Snow, Arlman-Rupp, Hassing, Jobse, Joosten, and Vorster (1976), studying the speech of Dutch mothers of three socioeconomic levels, found significant class differences in one situation (free play) but not in another (telling a story based on pictures in a book).

Secondly, what appears to be social-class based variation in language may in fact be an artifact of the different responses different social groups may have to the "same" situation. Cazden (1970), in a review of research on social-class based language differences, concludes that in

most of the cases studied, the differences that were found were due to differences in the ways that children from different backgrounds react to a situation, rather than to any difference in linguistic ability supposedly correlating with social class. This calls into question any study of social-class based language differences that does not carefully control for potential differences in the effects of the situation on the subjects involved. Cooper (1975), for example, in a critique of Bernstein's early work, points out that one of the settings used to collect data--a group discussion of capital punishment--may not have been as interesting, or as familiar, or as comfortable, to the working-class subjects as to middle-class subjects.

The problem of situational factors having differing effects on members of different social groups, and thus biasing the measurement of linguistic performance, is not only a theoretical one. Most of the information used to determine a child's verbal and intellectual abilities--information that plays a crucial role in shaping the child's future, both in school and beyond--is collected in test-like situations. And it is very likely that the test-like situation itself has different effects on children from different social backgrounds. More specifically, it has been hypothesized that children in minority groups often are not only less familiar with the content of the tests, but also less motivated to perform in test-like situations, and less familiar with the patterns of interaction that constitute such situations (cf. Steffensen & Guthrie, 1980).

The current research will take situational variation into account in the following ways:

First of all, our data base consists of natural conversations, the speech by and directed to 4½ to 5-year-old children from different socio-economic and racial backgrounds. The use of natural conversation in every-day contexts will avoid the distortions introduced by using test and inter-view data as the primary source of information about patterns of language use.

Secondly, the data covers a variety of situations, both at home, at school (that is, preschool), and en route between the two. For the purposes of the present research, we have chosen two specific situations for detailed data analyses: dinner at home, and directed activity at school (activity in which the target child is engaged in interaction with the teacher). The two situations are parallel in that both involve interaction between the target child and an adult; they differ in the context (home vs. school) and in the kinds of task and topic that are involved.

The Mismatch Hypothesis

In the current research we will test some specific hypothesis about situational and social variation in internal state word usage. The hypotheses to be tested fall under the general heading of the "mismatch hypotheses," which can be described as follows:

The mismatch hypothesis postulates that educational difficulties experienced by children from minority or "non-mainstream" backgrounds are caused by a discontinuity between the home and school environments--that is, a discrepancy between the expectations, strategies, and schemata that work at home, and the cognitive and motivational demands of the classroom. For children of the mainstream culture, on the other hand, there is a fair degree of continuity between home and school in terms of culture, patterns of language use and behavior, and types of strategies for interacting with adults.

Two more specific, independent hypotheses about internal state word usage can be formulated within the mismatch model.

First of all, it might be argued that schools demand a high degree of "metabehavioral awareness," and that different cultures or social groups do not provide children with the same amount of preparation in this area. By metabehavioral awareness we mean the ability to analyze, and verbally describe, the emotions, thoughts and intentions of a person or fictional character. Such analysis is typical of classroom discussion, especially relating to reading stories, even in early grades. The use of internal state words to talk about feelings, thoughts, and intentions is clearly an important aspect of the child's preparation for this type of school activity, and it is possible that children from some socio-economic levels or ethnic groups receive more of such preparation at home than do others. Analysis of the internal state word usage of the adults in the children's environments at home and school will indicate whether or not this is the case.

The first hypothesis, then is that there is a mismatch or discontinuity between the internal state word usage of adults at home vs. at school experienced by children from non-mainstream families. A second hypothesis can be formulated concerning the internal state words produced by the children. If children from non-mainstream backgrounds experience a mismatch of some sort between the home and school environments, there is likely to be some indication of this in terms of their response to the school situation. The internal state word usage of the children is a measure of one aspect of their response that is of clear educational significance.

It should be noted that these two hypothesis are independent: There may be a mismatch in the internal state word usage of adults at home vs. at school, but this may not be reflected in the internal state word usage of the children. Conversely, there may be a mismatch between the home and school environments which has nothing to do with the internal state word usage of adults, which however influences the internal state word usage of the children.

The current research, in providing analyses of data which will test these hypotheses, will shed light on current theories of educational failure among minority children. And in measuring differences in children's speech between home and school situations, it will also contribute to a more general theory of register or situational variation (cf. Halliday, 1978). In the following pages we will define internal state words, discuss the rationale for choosing internal state words for investigation, and present

the results from the analysis of internal state word usage in natural conversations in the home and school environments of 4½-5 year old children.

Cognitive Implications of Internal State Word Use

Variation occurs in all aspects of language; in pronunciation, grammar, choice of lexical items, discourse-level phenomena, and so on. We are interested in language as a transmitter and reflector of culture and cognitive styles, and are therefore interested in language variation along dimensions that will be of direct cognitive and educational significance. This excludes from our consideration differences in pronunciation (e.g., fas' vs. fast) or grammar (I don't have any vs. I don't have none). Such differences may correlate with important social distinctions, and relate in important ways to attitudes on the part of both speakers and hearers; but there is no distinction in conceptual content associated with differences in pronunciation or grammar alone. We therefore want to focus our investigation on aspects of language, or differences in patterns of language use that would be likely to influence the socialization of cognitive modes in children; these will have to do with the content and functions of language, rather than with formal properties of phonology or syntax.

The use of internal state words is crucially linked to cognitive strategies in three related areas: the acquisition and organization of internal state concepts; the understanding of stories and discussion of stories in the classroom; and metacognitive skills in general.

While it would be very difficult to prove that the acquisition of an internal state word is a necessary prerequisite for the acquisition of the associated concept (this position would undoubtedly be falsifiable in its strongest and most general form), there is some evidence that internal state words in some cases play an important role in the acquisition of the associated concept. Wellman and Johnson (1979) present evidence that children acquire the words remember and forget before they attain the adult internal-state-based meanings. They identify a stage at which remember and forget are given "performance" definitions (He remembered where it was is treated as operationally equivalent to He was able to find it) prior to the point at which the child's usage matched the adult meaning. Miscione, Marvin, O'Brien, and Greenberg (1978) present similar evidence that children first use the words know and guess with a meaning based on performance (i.e., someone "knew" if they were right, and "guessed" if they were wrong) before they acquire the adult meaning. Thus the words are at least available to the child as focal points for organizing information about these concepts, as the concepts are being acquired.

Younger children also seem to be especially dependent on internal state words for processing and organizing internal state concepts. Evidence suggesting this is found in the research on story comprehension reported in Grueneich and Trabasso (1979) and Stein and Goldman (1979).

Understanding a story involves not just an understanding of the individual events and actions that make up the story, but more importantly,

an understanding of the relationships between them. Human behavior (and perhaps especially those facets of behavior focused on in stories) is usually intentional or goal directed (Piaget, 1968). Therefore, while physical causal relationships among events are sometimes important, the key relationships among actions and events in stories are most often in terms of the thoughts, beliefs, motives, intentions, and desires of the characters. Thus, the understanding of a story is dependent on knowledge of the internal states, processes, and experiences of the characters (Stein & Goldman, 1979).

The reader derives knowledge or hypotheses about the characters' intentions and plans from two types of information in the story, which can be called "external" and "internal" (Grueneich & Trabasso, 1979). External information concerns the behavior of the character, the consequences of his or her actions, and forces in the story external to the characters. Internal information concerns the internal states of the character and the internal responses of the character to the consequences of his or her actions.

This distinction is closely related to the degree to which information about a character's intentions or plans is represented explicitly, or must be inferred indirectly from other information in the story. The character's intentions can be plainly stated in the story, in terms of statements about what the character wants, intends, or plans; can be inferred fairly directly from the character's other internal states (what the character

believes, whether the character is happy or sad about some event); or must be inferred indirectly from the character's behavior.

Grueneich and Trabasso (1979) give a survey of research which provides various types of experimental evidence that there are important developmental changes in the ability to make inferences about internal states from implicit information in stories. In general, there seems to be a tendency for younger children to be less able (or perhaps just less likely) to make inferences about characters' intentions and motives, or to make judgments based on characters' intentions and motives, when these are not made explicit in the story. One study cited--Leon (1979)--showed age differences in the degree to which subjects used information about characters' intentions only for complex stories in which these intentions were only implicit. In the case of simpler stories where information about the characters' intentions was explicitly stated, there were no age differences found.

Thus, younger children are more dependent upon explicit information about character's internal states in a way that adults are not. Internal state words will of course play a key role in any explicit representation of character's internal states.

First of all, this lends support to the hypothesis that internal state words play a crucial role in children's acquiring, organizing, and processing of internal state concepts. Secondly, it establishes an important connection between internal state word use and reading. Since internal

state words play a critical role in story comprehension for younger children, the child who has greater knowledge of or experience with internal state words might have a definite advantage in reading.

It should be noted here that internal state words play an important role not only in the actual process of reading and story comprehension, but also in the classroom discussion that goes with learning to read. The following are examples of suggestions for teachers to use in the discussion of a text at the first grade reading level:

> What are ( ) doing that makes you <u>think</u> that . . .
> Why do you <u>suppose</u> that . . .
> How does ( ) make you <u>feel</u>?
> How would you <u>feel</u>?
> Read the line that tells you how ( ) <u>feels</u>.

It could be further hypothesized that the child's initial success at reading and reading-associated tasks is influenced not only by his or her familiarity with internal state vocabulary, but also with his or her experience in using this vocabulary in classroom discussion and in school-like discourse patterns. There is evidence in the literature on the acquisition of language that children's early language use is situation-specific (cf. Nelson & Brown, 1978; Shatz, 1978). Thus, internal state word use by children in the classroom--even in preschool--may constitute an important type of preparation for reading.

The use of internal state words is also associated with a specific important type of cognitive process, namely, metacognition. Metacognition

can be described as knowledge, awareness, or control of cognition; Flavell (1978) defines metacognition as "knowledge that takes as its object or regulates any aspect of any cognitive endeavor." This includes awareness of one's own cognitive processes and activities, and also the regulation of them; for example, monitoring the process of problem solving, or planning and evaluating the use of cognitive strategies (Baker & Brown, 1980).

Internal state word use relates to metacognition in the following way. First of all, metacognition can be thought of as a specific subcategory of the more general phenomenon of metabehavioral awareness. Awareness of, or knowledge about, cognitive states and processes is similar to awareness of or knowledge about other internal states and processes, e.g., emotions, perceptions, or desires. All have in common the ability to reflect on internal experience that is prerequisite to the literal use of internal state words.

Secondly, the use of some internal state words--those that refer to specifically cognitive internal states or processes--actually constitutes metacognition. When one refers to any cognitive activity or state, one is necessarily aware of it; such awareness is an instance of metacognition. Similarly, the literal use of any internal state word requires an awareness of the internal state or process referred to. The literal use of an internal state word is therefore an instance of metabehavioral awareness.

The literal use of internal state words obviously does not constitute all of the metacognition or metabehavioral awareness that an individual engages in. One can reflect on or regulate one's cognition without

verbalizing the process. However, that portion of a person's metacognitive or metabehavioral activity that is verbalized is an important part. First of all, it is the only part open to measurement in naturalistic data. Second, it might be argued that a child is most directly influenced not by the amount of metacognition the parents engage in, but by the amount that they communicate about metacognition. Thus, the literal use of internal state words can be taken as a measure of the extent to which a child's environment at home or school stimulates reflection on internal states and processes.

The use of internal state words may play an important role in the acquisition of specific metacognitive skills related to reading comprehension. Schallert and Kleiman (1979) attempt to identify those strategies used by teachers to facilitate their pupils' comprehension of the material presented. Among the strategies are:

1. Activating prior knowledge--reminding pupils of knowledge they already possess that is relevant to the information being presented, and showing them what the connections between the old and new information are.

2. Focusing attention--increasing the pupils' interest and motivation by asking questions and calling attention to important points.

3. Comprehension monitoring--checking to see if the pupils have understood and remembered the chief points.

Such strategies are clearly ones that the pupils must internalize and learn to use themselves if they are to become effective readers and learners. It may be that such strategies are largely learned by internalizing

interpersonal versions of them (cf. Vygotsky, 1962). For example, the teacher or mother who monitors the child's comprehension by asking questions such as "Did you understand that part?" or "What was the main point of that paragraph?" may provide the example from which the child develops the ability to monitor his or her own comprehension. Such questions will often involve the use of internal state words, as would any explicit teaching of metacognitive skills or strategies.

There are several reasons why metacognitive skills constitute a profitable area in which to search for cultural differences that may have educational and cognitive consequences. The first is the obvious importance of metacognitive skills to the learning process. Metacognitive skills are "the basic characteristics of thinking effectively in a wide range of learning situations, including effective reading" (Brown, 1980). The importance of metacognition to education becomes clear when one considers how many aspects of the learning process are included in or affected by metacognition of some form:

> Checking the results of an operation against certain criteria of effectiveness, economy, or commonsense reality, is a metacognitive skill applicable whether the task under consideration is solving a math problem, reading for meaning, memorizing a prose passage, following a recipe, or assembling an automobile or piece of furniture. Self-interrogation concerning the current state of one's own knowledge during reading or any problem-solving task is an essential skill in a wide variety of situations, those of the laboratory, the school, or everyday life. (Brown, 1980)

Metacognitive skills seem to develop throughout the school years. Children's awareness and understanding of cognitive strategies relating to rote memorization of lists seems to be well-developed by third grade (Brown, 1980). But at least one more reading-specific metacognitive skill, the identification of those portions of a text which are most important, and hence deserve more time and attention, may be present in rudimentary form even in second graders, but shows substantial development all the way up into college (Brown, 1980).

Another factor that makes metacognitive skills a possible locus of educationally-relevant cultural differences is the fact that they are not "automatic." Markman (1979), for example, shows how 12-year-old children would fail to notice inconsistencies in short stories which were well within their ability to detect. Similar experimentation with college students had comparable results (Baker, 1979): Even at the college level, one cannot assume that readers are maintaining the level of awareness associated with comprehension monitoring. Thus, metacognitive skills are strategies which a child or college student may fail to use, even if they are well within his or her inherent ability. Besides that, there are individual differences in metacognitive skill, which seem to have educational consequences; for example, poor readers at the high school level showed less awareness of the reading process than did good readers, and possibly less monitoring of their comprehension (Baker, 1979).

One of the hypotheses motivating the current research is that significant ethnic or socioeconomic differences may exist in the use of internal state words, differences which may affect the child's readiness to learn metacognitive skills which facilitate educational success. Cultures may vary in the degree to which they provide children with practice in the kind of metabehavioral awareness associated with metacognitive skills. Thus, children from different backgrounds might come to school with widely differing experience in skills that play an important role in effective learning.

The exact nature of the relationship between communication about metacognition in the home and success in learning metacognitive skills at school must remain a topic for future empirical research. The scope of the present research is primarily to document what differences there are in the use of internal state words between different social groups, and then to interpret these differences, as far as this is possible, in terms of reasonable hypotheses about the effects these differences should have on the child's experience of school.

Previous Research on Social-Class-Based Differences In Internal State Word Use

There is a substantial body of research on social-class-based language differences (cf. Bernstein, 1971, 1973) which has significant implications for, and makes some specific predictions about, class differences in patterns of internal state word use.

In an early study on class differences in language use, Schatzman and Strauss (1955, using as data transcriptions of interviews with people who had experienced a tornado, and taking the extreme cases on educational and income distribution) found that lower class subjects were less likely, when describing human behavior, to "utilize motivational terminology, either explicitly or implicitly . . . To the speaker it was quite clear why people did what they did. There was no need to question or elaborate on the grounds for acts." They also found a class difference in the frequency of "you know"--this conversational device was more common among lower-class speakers than middle-class speakers.

In the "positional" mode of control (cf. Bernstein, 1971, 1973) which is associated with restricted code, and asserted to be more typical of the working class, regulation of a child's behavior is in terms of external behavior and the positional status of the participants. In the "personal" mode of control, associated with elaborated code and supposedly more typical of middle-class families, more emphasis is given to motivation and intention in controlling the child's behavior. Also, in the personal mode of control, regulations and principles are explained, whereas in the positional mode of control, they are simply enforced rather than discussed. This would suggest that internal state words would be used with greater frequency by members of the middle class (although the difference might be manifested in different types of usage rather than in overall frequency).

In Bernstein (1973) are articles by several different authors exploring the implications of his theories in more detail. Some of the articles make more explicit claims about internal state word usage.

In data based on questionnaires in which mothers estimated their own usage patterns in response to a series of specific questions, Henderson (1973) found that middle-class mothers talked more about cognitive topics than about affective/interpersonal topics, and more about cognitive topics than did working-class mothers. On the other hand, working-class mothers talked more about affective/interpersonal topics than about cognitive topics, and more about affective/interpersonal topics than did middle-class mothers.

If one could assume that Henderson's methods accurately reflect the mothers' actual usage (this is somewhat questionable), that English Social class differences are similar to those in America, and that more talk about cognitive or affective/interpersonal topics will increase the frequency of the corresponding internal state word categories, then this research makes specific predictions about class differences we might expect to find in the internal state word usage in our data.

A slightly earlier study done in America had somewhat similar results. In a study of spontaneous story telling of fourth graders, von Raffler Engel and Sigelman (1971) compare the speech of middle/upper-class whites and lower/middle-class blacks (thus confounding race and socioeconomic status). They found that a higher percentage of black children referred

to internal states than did white children (71% vs. 46%), but that there were differences in the type of internal states referred to. Internal state references by the white children were mostly think and know; references to internal states by black children related to emotions and ambitions.

These results seem to confirm the class differences in choice of topic noted in Henderson (1973), but do not confirm the overall impression one gets from the descriptions of restricted and elaborated codes, that lower working class persons do not use language to explore intentions and feelings.

Thus, internal state words do figure in claims that have been made about social-class-based language differences that might be of educational significance. However, the research up to now has suffered from lack of a broad data base that takes situational variation into account and includes naturalistic conversation by children and their caregivers in the home.

Internal State Words--What They Are

The current research centers on the analysis of data from the project outlined in Hall and Nagy (1979). Procedures were developed for coding internal state words, that is, for identifying instances of internal state words in naturalistic data and categorizing certain aspects of their use and function in the context of discourse; these procedures were then applied to the large corpus of conversation described earlier, and the resulting data subjected to analyses of various kinds.

Internal state words, or words of internal report, have meanings primarily concerned with internal processes, states, and experiences.

This includes words about cognition (e.g., think, know, believe, remember, figure out), about emotions (e.g., fear, angry, sad, happy), about perceptions--both the five senses (see, hear, etc.) and the more "internal" perceptions (e.g., dizzy, thirsty, ache)--about desires (want, wish, desire), and about intentions, choices, and decisions.

Internal state words are words which by virtue of their lexical meaning refer, when used literally, to internal states and processes. The word jerk (as in I could kill that jerk) expresses the speaker's internal state or attitude, but does not refer to it, as would a word like angry or upset. To take a different kind of example, the words did something in a sentence like I don't know what she said, but it sure did something to him may well refer to an internal state or experience, but not by virtue of the lexical meanings of these words.

Many words imply or presuppose information about internal states, but are not primarily about internal states themselves. For example, complain presupposes a certain type of attitude on the part of the speaker, but is primarily a verb of speaking. There are also words about capacities, such as blind or intelligent, which relate to internal states and processes, but which do not refer directly to internal states or processes as such.

Lexical ambiguity complicates the process of determining what should be considered an instance of an internal state word and what should not. See, for example, is a perceptual internal state word in Did you see the firetrucks? and a cognitive internal state word in I don't see how you can do that.

However, it is presumably not an internal state word at all in a sentence like He went to see his grandmother, since it seems to be more or less synonymous with visit in this context.

In naturalistic data there will of course be several types of borderline cases where it is not clear whether some state, processes, or experience can be considered "internal" (that is, "mental" or "psychological"). The theoretical issues involved in such cases have been discussed in detail in Hall and Nagy (1979). However, the majority of words occurring in everyday conversation are rather prototypical examples of our basic internal state categories.

We have divided internal state words into four major categories:

1. Cognitive. Words in this category are about cognition, awareness, consciousness, knowledge, understanding, attention, thinking, belief, or certainty. Some of the commonly occurring cognitive words are:

think	know	remember	forget
understand	figure out	belief	believe
guess	assume	wonder	pretend

2. Affective. Words in this category relate to emotions. Some of the commonly occurring affective words are:

like	love	hate	afraid
sorry	angry	annoy	glad
happy	mad	mood	regret
prefer	sad	scared	upset

3. Perceptual. These words relate either to the five senses or to a person's awareness of his/her own body, e.g., pain or hunger. Some common perceptual words are:

see	look	hear	watch
listen	taste	hurt	pain
hungry	ache	tired	thirsty

4. Intentions and desires. This category includes words for internal states that relate to goals--what a person intends, chooses, or wants. Some common words in this category are:

want	wish	intend	would like
plan	mean	decide	change one's mind
choose	hope		

These coding categories, discussed in more detail in Hall and Nagy (1979), are a refinement of the categories designed for the investigation of internal state word use in naturalistic data given in Gearhart and Hall (in press). The categories Cognitive, Affective, and Intentions and Desires are very similar to the three subcategories of the internal response category of the Stein and Glenn (1979) story grammar: Thoughts or cognitions (e.g., "Mary thought John was obnoxious"), feelings or affective responses (e.g., "Mary was very angry") and goals or desires (e.g., Mary wanted to hit John"). For the purposes of the story grammar it might seem best not to include Perceptual words in the category of internal responses. But in this research, internal state words are of interest because of their implications for metabehavioral awareness. We would consider perceptual awareness (e.g.,

the ability to analyze a perceptual array into a set of geometrical or mathematical relationships) as being related to metabehavioral awareness (e.g., the ability to analyze the emotions of a person or those of a fictional character). Both types of awareness are characteristically required in school situations.

In Appendix A there is a complete list of words from the corpus that potentially belong to each of these four categories. Most words have a number of meanings, so the fact that a word occurs in a given category means only that it has at least one meaning that belongs in that group. Whether or not a specific instance of that word in the conversation belongs in that category must be determined on the basis of the context.

Note that the lists include idioms (e.g., pay attention to, change one's mind) as well as single-word lexical items.

In coding for usage, the most important distinction in our study is what we have labeled the "semantic/pragmatic" distinction, which can be expressed in the following question: Is a given instance of an internal state word being used to refer to and communicate about an internal state? More briefly, is it being used literally?

Semantic, or literal, usages, are those instances where the internal state word is used to refer to an internal state, as for example the know in Maybe you know the answer. Pragmatic, or nonliteral, usages, are those instances where the lexical meaning of the internal state word contributes

indirectly, if at all, to the propositional content of the sentence. A typical example of this would be the know in Ya know, there ought to be a law.

Two tests can be used to determine whether a given instance of an internal state word should be coded semantic or pragmatic. According to the first test, an internal state word can be considered pragmatic if the utterance containing it can be accurately paraphrased without using a corresponding internal state word. In the following examples, the underlined internal state word in the (a) version is considered pragmatic, since the (b) version paraphrases the meaning without an internal state word. Note that the validity of the paraphrase is dependent on what the speaker meant when uttering the (a) version in context.

1a. You know, they should really do something about it.
b. Well, they should really do something about it.

2a. You wanna take out the garbage, please?
b. Could you take out the garbage, please?

3a. You know what I did? I walked right into his office and said . . .
b. And what did I do? I walked right into his office and said . . .

4a. Johnny, do you know who discovered America?
b. Who discovered America, Johnny?

5a. It's gonna rain, I think.
b. It's probably gonna rain.

6a. Don't you think we should decide what to do?
b. Shouldn't we decide what to do?

7a. Look, we're not going to put up with that kind of behavior.

b. Hey, we're not going to put up with that kind of behavior.

8a. I see.

b. Mhm.

The paraphrases in the above examples are clearly not perfect. But it is important to note the ways in which the two members of the pair differ. In (1a) and (1b) for example, You know and well clearly differ in style or register, and thus have a different "feel"; but the two sentences do not differ in propositional content. This illustrates the reason for calling the nonliteral usages "pragmatic"--they do not contribute to the propositional content of the sentence, but they do have definite discourse functions.

Pragmatic usages of internal state words, as can be seen from the examples above, only have an indirect connection with the corresponding internal state concept, so they are presumably of little help to the child in the process of acquiring internal state concepts.

The second test in determining whether a given instance of an internal state word should be considered semantic or pragmatic is as follows: A usage of an internal state word can be considered pragmatic if it falls into any of the following specific categories of pragmatic usages:

Conversational Devices and Mannerisms
Indirect Requests and Suggestions
Rhetorical Questions
Exam Questions
Hedges
Opinion Questions
Attentional Devices

Conversational Devices and Mannerisms

Conversational devices and mannerisms are pragmatic uses of internal state words which (a) tend to be highly conventionalized, (b) contribute minimally to, and are not tightly integrated into, the propositional content of the matrix sentence, and (c) function mainly in terms of the processes of conversation rather than its content, that is, filling pauses, getting or maintaining the addressee's attention, indicating that one is listening, etc.

The following are examples of conversational devices, with the relevant internal state word underlined:

You're not serving the children, you know.
It's well you see it's a very sweet little thing.
You see you shouldn't eat your pork chop like that.
See, her mike and my mike are independent.
You don't need a bow, remember, just a . . .
Listen, I don't want to waste any time.
Look, you have to be more careful.
I mean, the topics they talk about aren't even the same.
I know. (When it is equivalent to mhm.)
I see. (When it is equivalent to mhm.)
Let's see.
I'm afraid I didn't think of it.
I'm sorry, Melissa, there is nothing sour or bitter about these greens.

Indirect Requests and Suggestions

Indirect requests and suggestions are pragmatic uses of internal state words which (a) are tightly integrated into the syntactic and semantic structure of the sentences in which they occur, but (b) are used to convey

not the literal meaning of the sentence, but a request or suggestion which is conversationally implicated by the literal meaning. The most common cases in this category involve the use of the word want, where the sentence is literally a question about the addressee's wishes, but serves as a request or suggestion in terms of its discourse function:

> You want to take out the garbage, please?
>
> Now you have nine blocks, wanna make them in a straight line?
>
> When you find out her brain pattern, you want to tell us where the brain is actually located?

Some uses of think seem to fall into this category as well:

> Don't you think we should decide what we're going to do?
>
> Do you think you could take out the garbage?
>
> Think we should start moving the furniture?

Rhetorical Questions

Rhetorical questions are defined, for our purposes, as questions which if taken literally would count as requests for information about the state of the addressee's knowledge, but which function as an attempt to get or heighten the addressee's attention, or to introduce a new topic. This definition can be rephrased into two criteria, both of which must be met for the internal state word to be classified in this category: (a) Rhetorical questions have the literal form of requests for information about the addressee's knowledge--normally yes-no questions (You know what happened?) but occasionally imperatives (Guess what happened). (b) The internal state word occurring in the question is counted as pragmatic only if the addressee

does not answer the literal question. Therefore, of the following three exchanges, only the second two involve rhetorical questions:

1.A: You know what happened to Harry?
B: No. What happened?

2.A: You know what happened to Harry?
B: What happened?

3.A: You know what happend to Harry? He was on his way to . . .

Note that a question about the addressee's knowledge as in (3) is counted as rhetorical if the speaker does not give the addressee an opportunity to answer it.

Sometimes words other than know are involved:

> Did you ever hear about the animals that was in my bed? One night . . .
>
> Do you wanna know why? Well . . .
>
> Would you like to hear what it was? It was a . . .
>
> Guess what. We have no milk.

The highly conventionalized question You know what? has been coded as a rhetorical question, since it seems to function in the same manner.

Exam Questions

Exam questions are similar to rhetorical questions but have a slightly different conversational function. They can be defined in terms of the following criteria: (a) They are literally yes-no questions about the addressee's knowledge. (b) They count as Wh-questions. (c) The speaker already knows the answer to the Wh-question and is testing the addressee's knowledge. For example:

1. Teacher: Do you know who discovered America?
   Child: Christopher Columbus.

2. Parent: Do you remember how they used to start fires when they didn't have matches?
   Child: Rub sticks.

As in the case of rhetorical questions, whether or not the internal state word is considered pragmatic depends on whether or not the literal yes-no question is answered. In the following two examples, the questions are answered literally, so the internal state word know would be counted as semantic.

3. Teacher: Do you know who discovered America?
   Pupil: Yes. Christopher Columbus.

4. Teacher: Do you know who invented the light bulb?
   Pupil: No.

Hedges

Hedges are uses of internal state words which in their literal form are statements about the opinion or belief of the speaker, but which are used to convey doubt or uncertainty more than the fact that what is said is the speaker's belief or opinion. Hedges most commonly involve the word think, but also occur with guess, bet, suppose, and imagine.

The most clear-cut cases of hedges are those in which the internal state word in question occurs as a tag at the end of the sentence, as in the following examples:

It's going to rain, I think.
We should go, I suppose.
He's in the other office, I guess.

Cases where the phrase I think comes at the beginning of the sentence are harder to decide, because such a sentence, depending on the context and intonation, may be a literal statement about the speaker's beliefs or opinions. For example:

I think it's going to rain.

If the context and intonation do not make it clear whether a sentence should be taken as a hedge or not, the following criteria can be used: (a) Is the sentence used to convey doubt or uncertainty about something--to qualify or limit the speaker's degree of commitment to what is asserted--or is it used to express the fact that the speaker believes something to be true? (b) Can the sentence, taken in context, be paraphrased by a sentence in which the phrase I think is a tag at the end?

The following sentences can probably be classified as hedges, depending of course on their context and intonation:

I think we have everything.
I bet it's a microphone.
Well, I . . . I think he's getting better, but uh . . .
I think you didn't serve M. her chicken.
I think we had it once before.

The question of whether or not something is a hedge only comes up in first-person singular usages; in any other case think is literal, as in:

John thinks it might rain.

Opinion Questions

Opinion questions are different from hedges only in that they are questions rather than statements. The following are examples of sentences that might fall into this category:

Do you think it will rain?
Why do you think the fire went out?
What do you think he wants?
Do you think he might have done it on purpose?
Don't you think it should be called an academic position?

The test of whether think in such a sentence should be considered semantic or pragmatic is whether or not the intended meaning of the sentence can be paraphrased without think. That is, if (1a) below was intended to mean the same as (1b), then the think in (1a) was pragmatic.

1a. Don't you think it should be called an academic position?
b. Shouldn't it be called an academic position?

Attentional Devices

Attentional devices are uses of perceptual words to get or heighten the addressee's attention. They fall into two basic categories: (a) imperatives of verbs like look, listen, and watch:

Look what I did!
But then look what happened, see!
Look. Hey Julia, look! Julia, look what I did with yours.
Look at that!
Watch out!
Look at Matilda!

(b) Questions and reduced questions with see and hear.

You see that?

See?

See, they're showing you all kinds of fires.

These are in some sense on the borderline between semantic and pragmatic usages. On the one hand, the lexical meanings of look and see do seem to be involved in sentences such as the above. On the other hand, such usages serve more to fulfill a particular function in interpersonal interaction--getting someone's attention--than to talk about perception.

Some uses of look and listen are superficially similar to attentional devices, but seem to be better categorized as conversational devices and mannerisms. In the following examples, the (a) member of each pair is an attentional device, and the (b) member a conversational device or mannerism.

1a. Look! I can do a cartwheel.

b. Look, I paid a lot of money for this car and I expect . . .

2a. Listen! I have something important to tell you.

Listen, if you think you can get away with that kind of . . .

3a. See? Her mike and my mike are independent.

b. See, her mike and my mike are independent.

Semantic Usages

In pragmatic usages, the lexical meaning of the internal state word contributes only indirectly, if at all, to the meaning of the sentence. Semantic uses of internal state words, on the other hand, are by definition instances where internal state words are used to refer to--and hence to communicate about--internal states, processes, and experiences.

Also excluded from the category semantic are those instances of internal state words which are used in songs or in sentences read from books. Thus, the internal state words happy and know, which are repeated frequently in the song "If you're happy and you know it" sung in one segment of our corpus, are not included in the count of the semantic internal state words for that segment.

Semantic uses of internal state words can be further subdivided into reflections and non-reflections. Reflections are assertions by the speaker about his/her own current internal state, or questions about the addressee's current internal state.

One motivation for this distinction is the concept of metacognitive experience. For our purposes, we can adopt the following, somewhat modified definition of metacognitive experience: a metacognitive experience is awareness of one's own current internal state. (This overlaps substantially, but not perfectly, with the following definition by Flavell, in press: "Metacognitive experiences are conscious cognitive or affective experiences which occur during the enterprise [that is, some cognitive enterprise] and concern any aspect of it.")

Reflections as defined above have the following relationship to metacognitive experiences: When a speaker makes an assertion about his/her own current internal state, he or she must necessarily be aware of that state; the assertion is an expression of that awareness. When a speaker

asks a question about the addressee's current internal state, this presumably elicits awareness on the part of the addressee on his/her own current internal state.

We have excluded from our definition of reflections assertions by the speaker about the addressee's internal state (You know what shoes they are) as well as imperatives relating to the addressee's internal state (Guess where I'm hiding). These may of course also elicit awareness on the part of the addressee of his/her own current internal state, but the connection is not as direct as in the case of questions, where the speaker is explicitly trying to elicit such awareness.

The definition of reflections given above can be broken down into two main criteria:

First, for a semantic usage to qualify as a reflection, it must be an assertion about the speaker's internal state or a question about the addressee's internal state. Thus, the internal state word must be in the part of the sentence asserted or questioned. This largely restricts reflections to internal state words in the main clause of the sentence; relative clauses and many subordinate clauses are presupposed rather than asserted or questioned. Thus, examples (1) and (2) below constitute reflections, while (3) and (4) do not:

1. I'm thinking about it.
2. Do you know what the answer is?
3. Somebody I know told me about it.
4. They say that I know the answer.

Secondly, a reflection must be about the current internal state of the speaker or addressee. This rules out utterances in the past or future tense, as well as many utterances with modals, such as the following, which are not reflections because they refer to potential or future, rather than current, internal states:

I might think about it.
I should think about it.
I will think about it.

On the other hand, negation doesn't necessarily exclude a sentence from being a reflection: I'm not thinking about it right now is in fact a reflection on the speaker's own current internal state.

Another motivation for the reflection-nonrelfection distinction has to do with properties of nonreflections. What nonreflections have in common (with one exception) is some degree of displacement: They are about a third person's internal state, or a past, future, or potential state of the addressee or speaker. The one exception is assertions about the addressee's current internal state. These are by definition nonreflections, but they do not involve any displacement. Such assertions, however--sentences like You know what shoes they are--are relatively rare in normal conversation.

Table 1 gives examples of sentences from our corpus illustrating reflections and nonreflections in each of the four lexical subcategories of internal state words.

Insert Table 1 about here.

Subjects

Subjects in this study were 39 preschool children, 4½ to 5 years old. The children's families fell into four groups defined in terms of race (black and white) and socioeconomic status (working class and middle class). Socioeconomic status (SES) was determined through the use of income and education indices from the scale developed by Warner, Meeker, and Eells (1949). The composition of this sample makes it possible to look for racial and/or socioeconomic differences in patterns of language use, the generality of which would of course have to be established on the basis of a larger sample.

The working-class children in our sample were attending federally-funded preschools; the middle-class children were in private preschools. The working-class black children were in all-black classes, with black teachers, while the middle-class black children were in interracial classes with both black and white teachers. None of the black children were in the same classes as the white children in our sample.

Coding Procedures

The speech recorded in two situations--teacher-directed activity at school and dinner at home--were used in the analysis. The recordings included the speech of the 39 4½- to 5-year-old target children, and that of their parents, teachers, and any other adults or children within range of the microphones.

Categorization of the internal state word was carried out by two independent judges, who worked from transcripts of the original tapes.

The transcripts were distributed across race and SES to minimize confounding due to practice, and each judge coded approximately half the transcripts in each race/SES group.

The transcripts incorporated the following information:

(1) a number identifying the target child and his/her family;

(2) a code representing the race/SES group of that family;

(3) a code identifying the speaker of each particular line of the transcript;

(4) a code identifying the situation;

(5) a sequential number identifying each line in the transcript;

(6) an indication of incidents of simultaneous talk;

(7) the actual text of the utterance;

(8) a code indicating whether or not the utterance contained a question; and

(9) the number of words and turns spoken by each speaker in the situation.

In addition, there was also, interspersed through the transcript, the contextual information provided by the experimenter during the taping. This information was useful in interpreting the discourse; for example, to whom a given remark was addressed, or the type of activities in which the participants were involved.

For each internal state word in the transcripts, the judges determined the following information:

(1) the turn number (identifying the position of that internal state word in the transcript);

(2) the speaker of the particular internal state word (already specified in the transcript);

(3) the addressee of the turn of speech containing the particular internal state word (this was inferred from the context and content of the utterance);

(4) the lexical category of the internal state word (i.e., cognitive, affective, perceptual, or intentions and desires);

(5) the usage category (each internal state word was first categorized as being a semantic usage, a pragmatic usage, or part of a song or quote; pragmatic usages were assigned to one of the specific pragmatic subcategories);

(6) to whose internal state the word referred (i.e., the speaker's, the addressee's, both the speaker's and the addressee's, or a third person's); and

(7) whether the use of the particular internal state word represented a reflection or not.

To assess agreement between the two judges, the transcript of a randomly selected subject was coded by both judges. Although the judges identified and categorized differing numbers of internal state words (274 and 286), they agreed on 262 (95.6% and 91.6%, respectively). Of these 262 internal state words, the agreement between the judges was generally quite high. The addressee of a particular internal state word was commonly identified 77.5%. The disagreements here usually involved uncertainty about the exact identity despite agreement about the age and sex of the addressee. Only 5%

of the total judgments involved disagreement about whether the target child was the addressee. The assignment of each internal state word to a particular lexical category showed 92.0% agreement, although there was only an 88.5% agreement on the semantic-pragmatic distinction. Determination of the pragmatic subcategory resulted in 97.7% agreement; all disagreements here involved confusion between conversational devices and either attentional devices or rhetorical questions. The identification of the object of the internal state word (that is, to whose internal state the word referred) resulted in common judgments in 84.4% of the cases. Finally, the judgment as to whether the internal state word represented a reflection or not was made in common for 84.7% of the internal state words. In general, the interrater agreement across all judgments is remarkably high for data of this sort.

Dependent Variables

The internal state words occurring in the transcripts, having been coded according to the coding system described above, were grouped into the following categories:

Semantic Categories:

Reflections:	Cognitive Reflections
	Affective Reflections
	Perceptual Reflections
	Intentions & Desires Reflections
Nonreflections:	Cognitive Nonreflections
	Affective Nonreflections
	Perceptual Nonreflections
	Intentions & Desires Nonreflections

Quotes and Songs

Pragmatic Categories: Conversational Devices
Indirect Requests
Rhetorical Questions
Exam Questions
Hedges
Opinion Questions
Attentional Devices

The following steps were taken to reduce this set of categories to a workable number of dependent variables: First of all, we chose to group together conceptually similar variables which individually were too low in frequency to be subject to reliable analysis. Secondly, we chose to focus on functional rather than lexical categories.

As a result, all pragmatic categories except attentional devices were grouped into a single category labelled nonliteral usages. Attentional devices were kept as a separate category. Nonreflections were similarly treated as a single category. Only in the case of reflections did we construct separate variables based on the lexical class of the internal state words. Songs and quotes were too infrequent to be analyzed.

We also included in the analysis some supercategories: First, reflections, including all four lexical classes of reflections; second, semantic usages, including both reflections and nonreflections, and finally, internal state words, which includes all kinds of internal state words (semantic, pragmatic, or quotes and songs) occurring in the transcript.[1] The variables included in our analyses and the inclusion relationships among them, are represented in Figure 2.

Insert Figure 2 about here.

Since no attempt was made during the taping phase of this study to control the target child's interactions, the amount of speech available for each target child and his/her principal interactants varies quite widely. Table 2 shows the means, standard deviations, and ranges of both the number of words and the number of turns for the target children and their principal caretakers. It is apparent from this table that the absolute frequency of

---
Insert Table 2 about here.
---

occurrence of each of the coding categories will be, in part, dependent on the amount of speech sampled. In fact, frequencies for each speaker have an average correlation of .73 with the number of words she/he spoke and .71 with the number of turns she/he took.

There are two typical ways to deal with contamination of this sort. One method is to treat the contaminants--words and turns, in this case--as covariates; in essence, to partial out their influence from the internal state word categories. The other method is to divide the variables of interest by the contaminant, as a less direct (and frequently less precise) way of partialling out their influence. When the correlations among the internal state word categories were computed according to both methods and compared, the mean differences were negligible; .02 for per-word vs. words-controlled and .09 for per turn vs. turns-controlled. Thus the use

of proportions does not appear to be substantially less precise at reducing contamination than partialling. Based on this, as well as the fact that proportions are more conceptually meaningful and interpretable, we decided that the dependent variables would be formed as proportions of the number of words. For example, if a target child spoke 687 words in a given situation, and used 4 affective reflections, his affective reflections/words score would be 4/687 or .00582. When we refer to affective reflections, or any other internal state word variable from now on, unless it is otherwise specified, we will be referring to such per-word ratios.

Proportion variables typically have positively skewed distributions, and our variables are no exception. Thus for purposes of statistical analysis, the variables were arcsine-transformed to make their distributions more normal. All reported means and patterns of means, however, are based on the more meaningful untransformed variables.

Selection of Speakers for Analysis

The variables we chose can be defined for any speaker or group of speakers within a situation. Certain speakers and groups of speakers are of special relevance to our purposes.

The target children were of course the focal point of the data collection and are the focus of this analysis as well. They are the only individuals consistently present in both home and school situations, thus allowing for an analysis of situational variation in the speech of the same person.

The speech of target children is also of special interest to us because we are interested in the process of cultural transmission--that is, how a child learns patterns of language usage from the speech in his/her environment. Our target children, aged 4½ to 5 years, were still at an age when their understanding of internal state concepts is developing (cf. Wellman & Johnson, 1979).

The speech of other participants was of interest to us primarily insofar as it explained, or failed to explain, situational variation in the speech of the target children.

There are three sets of speakers who can be considered to comprise the linguistic environment of the target children. One of these contains only the primary caregiver (presumably the mother in the home environment and the teacher in the school environment). Another possible set contains all adults in the target child's environment. At home, this would include fathers, grandparents, and any other adults present (either coincidentally or on a regular basis) during the dinner situation. At school, this category consists almost entirely of teachers. The experimenter is present in the classroom, but speaks relatively little, and there are very few teachers' aides. A third definition of the target child's linguistic environment would include all speakers other than the target child him/herself.

While the third of these definitions has an obvious validity for some purposes, we have excluded it from our analyses for the following reasons: First of all, since the families in our sample differ in composition--some

have only one child, others have several--comparison of internal state word usage across families would be difficult to interpret, since children and adults may differ substantially in their internal state word usage. Thus, a measure of the child's linguistic environment that included other children might reflect the age-composition of the family more than consistent differences in internal state word use. Secondly, this measure of the environment of the child would incorporate a degree of redundancy. We are interested in measuring the influence of situational factors on the internal state word use of the target children. The speech of the other children, if included in the measure of the target child's linguistic environment, would incorporate factors influencing the target child's speech, but also the response of the other children to those same factors.

Because of this potential problem, in looking at the speech in the target child's environment, we concentrated on two measures: (a) the speech of the primary caregivers (the teachers and mothers) and (b) the speech of all adults in the target child's environment.

Results of Data Analysis

We will begin by presenting our data in terms of the results of Situation x Race x SES and Race x SES analyses of variance (ANOVAs) on the internal state word variables representing the speech of the target children, the speech of their primary caregivers (mothers and teachers), and of all the adults in their home and school environments. Then we will try to account for variations in the target children's internal state word use.

Situational Analyses

Situation x Race x SES analyses of variance were performed for all our dependent variables on target children, primary caregivers (mothers and teachers), and all adults present in each situation. Since the setting is obviously a repeated factor in the case of the target children, target children for whom data were not available at both school and dinner were excluded (N for this analysis = 36). In the case of primary caregivers, two target children did not have mothers living at home; one other mother spoke only 5 turns (23 words) in the course of the two dinners taped, using no internal state words at all; it was decided to exclude her from this analysis as well (N = 37 teachers, 35 mothers).

Tables 3-5 present all the significant effects found for these analyses. Because it is consistent with the organization of our subsequent discussion, the results are grouped according to the independent variables involved, rather than by groups of speakers. Table 3 contains all main effects of situation, Table 4 all significant interactions of situation with race and/or SES, and Table 5 all effects of race and SES that do not involve situation.

Insert Tables 3, 4, and 5 about here.

Cell means for target children and primary caregivers are found in Appendix B.

Main Effects of Situation

For the target children, all significant main effects of situation involve a difference in means in the same direction: The target children

use more affective reflections, perceptual reflections, nonreflections, semantic usages, and nonliteral usages at home than at school. (It must be kept in mind that these variables represent proportions with the total number of words spoken as the denominator. Strictly speaking, one must say not that the children use more semantic internal state words at home than at school, but that semantic internal state words constitute a larger proportion of the children's speech at home than at school.)

Looking at the adult speech the children are exposed to--both in terms of primary caregivers (mothers and teachers) and all the adults in the environment--a similar pattern can be seen. In the case of the speech of all adults (for which more of the main effects of situation was significant), there were proportionately more cognitive, affective, and intentions and desires reflections used at home than at school; the same hold for cognitive, affective, and perceptual reflections taken as a group (CAP reflections), semantic usages, nonliteral usages, and all internal state words. The only exception was for attentional devices, which were used more by adults at school than by adults at home.

In comparing the relationship of the speech of the target children and adults, three different patterns emerged from an inspection of Table 3. First, for two variables--affective reflections and semantic usages--there is a significant home-school difference found among adults, and a corresponding significant difference among the target children. Second, for almost all the other variables, there is a significant home-school difference

among adults, but no significant difference among the children. (The differences in means among target children, though nonsignificant, were in the same direction as the significant differences among the adults.) The third pattern, perhaps the most interesting of the three, involves the two variables, perceptual reflections and nonreflections, for which the target children show a significant situational difference, while neither the primary caregivers nor the adults in general show such a difference. Moreover, in the case of nonreflections there is almost no difference at all in the means for the adults in the home vs. school environments. In the case of perceptual reflections, where children have a significantly higher mean at home than at school, the adults (both primary caregivers and adults in general) show a nonsignificant difference in the opposite direction.

This illustrates a point that will become even clearer in further results. Specifically, the use of internal state words by the target children reflects the internal state word use of the adults in their environment to a certain extent and in certain respects, but there are also important aspects of the target children's internal state word use that cannot be accounted for in terms of the internal state word use of the adults around them.

Interactions of Situation with Race and/or SES

The significant interactions in the speech of the target children reported in Table 4 were each followed up by post-hoc testing. The Tukey test was used for all pairwise comparisons, while the Scheffé method was used for the nonpairwise comparisons (Kirk, 1968). A significance level of .05 was used for all post-hoc testing.

The significant Situation x Race interactions indicated that black children had lower means at school than at home for reflections, semantic usages, and internal state words. At school, white children had higher means than black children for semantic usages and internal state words; white children at home also had a higher mean than black children at school for semantic usages and internal state words. Furthermore, it was found that the mean for the black target children at school was significantly lower than the mean for the other three cells (black children at home and white children at home and at school), taken as a group, for reflections and internal state words.

The significant Situation x SES interaction for nonreflections indicates that the mean for middle-class target children at home is higher than the mean for middle-class target children at school.

The fact that the black target children's mean at school for reflections, semantic usages, and internal state words is lower than their mean at home, and lower than the white target children's means at both home and school bears crucially on the theoretical issues and hypotheses central to the present research. There is apparently something about the school situation, or the black target children's response to it, that causes them to use proportionately fewer internal state words at school than at home, and fewer internal state words than the white target children use at school. One of the chief goals of further analyses is therefore to identify as far as possible the situational factors influencing the children's internal

state word use, and to see to what extent these factors contribute to this Situation x Race interaction.

The interaction takes on a different character for the analyses involving teachers and mothers, however. The significant Situation x Race x SES interaction for reflections has the following pattern: At home, the white middle-class mothers have the highest mean, and the black middle-class mothers have the lowest mean; at school, the teachers of black middle-class target children have the highest mean, and the teachers of white middle-class target children have the lowest mean. The same pattern holds for CAP reflections, and almost the same pattern for affective reflections as well.

The Situation x Race interaction for nonliteral usages, on the other hand, indicates that the mean for black mothers is higher than the mean for white mothers. This order is reversed among teachers. The same pattern obtains for the interaction in the adult environment at home and at school.

In the case of overall situational variation, there was similarity, at least for some variables, between the children and the adults in their environment. In both cases, there was a general tendency to use more internal state words in most categories at home than in school, both on the part of the target children and the adults. In the case of the interactions of situation with race and SES, however, there is no apparent similarity between the target children and the adults in their environment. More specifically, no trace of the Situation x Race interaction in the target children's use of reflections, semantic usages, and internal state words can be found in the speech of their primary caregivers or of the adults in their environment.

Therefore, it appears that an explanation for this interaction in the speech of the target children will have to be sought elsewhere than in the internal state word use of the adults in their environment.

Main Effects and Interaction of Race and SES

Finally, we want to take note of any overall race or SES differences independent of the effect of situation (see Table 5). Among the target children, race main effects indicate that white target children use more attentional devices, and more internal state words in general, than do black target children. This pattern holds for the use of attentional devices among primary caregivers, and for the use of intentions and desires reflections in the adult environments. The significant main effect of SES on the use of perceptual reflections by adults in the environment indicates a greater use of this category of internal state words in the environments of working class target children.

It should be noted that the main effects of race and SES in our data are both rather few and also rather specific. White target children do use more internal state words in general than do the black target children, but, as will be seen in the following analyses, this difference holds only at school, not at home. The white target children also use more attentional devices (that is, they say "Look!" more often), but there are no other main effects of race found among the target children.

Among primary caregivers, the only significant effect of race or SES is again in the use of attentional devices. And among adults in the

environment, there is only one significant main effect each for race and SES; in both cases, a specific subcategory of reflections is involved.

Within-Situation Analyses

Race x SES ANOVAs were also performed on all dependent variables within each situation for each group of speakers analyzed in the previous ANOVAs (that is, target children, mothers and teachers, and all adults). The results of these analyses are summarized in Tables 6 and 7.

Insert Tables 6 and 7 about here.

Among target children at home, the main effect of race on attentional devices shows that white target children use significantly more attentional devices than black target children. (There is a similar main effect of race on attentional devices at school as well.) The only other race effect occurs for cognitive, affective, and perceptual reflections taken as a group (CAP reflections). On this variable, the black target children have the higher mean. At school, however, there are race main effects for semantic uses and for internal state words in addition to that obtained for attentional devices. For both of these variables, the means of the white target children are higher than the means of the black target children.

The only other significant effect for target children within the school situation is the Race x SES interaction on CAP reflections. In this case the white working-class target children have the highest mean at school,

followed by the black middle class. The white middle-class and black working-class children have the lower means at school for this variable.

For mothers, none of the effects were significant. Taking the speech of all adults in the home environment, however, some effects of race and SES do show up. The main effect of race on intentions and desires reflections indicates that adults in the white homes use more of this category of reflections than do adults in the black homes. The significant effect of SES on nonreflections shows that adults in middle-class homes use more nonreflections than do adults in the working-class homes. There is also a significant Race x SES interaction for affective reflections which indicates that the white middle-class and black working-class adults use more affective reflections than the black middle-class or white working-class adults.

The two measures of the adult environment at school--speech of teachers and speech of all adults (which includes teachers' aides and the experimenter as well as teachers)--show the same pattern for two variables. In the case of perceptual reflections, there is a significant effect of SES for both measures of the environment, which indicates that adults in the school environment of working-class children use more perceptual reflections than do adults in the school environment of middle-class children. In the case of nonliteral usages, a main effect of race for both measures shows that adults in the school environment of white children use more nonliteral usages than do adults in the school environment of black children.

A Race x SES interaction in school indicates that teachers of black middle-class and white working-class target children use substantially more cognitive reflections and affective reflections than do teachers of black working-class and white middle-class target children.

In the home situation, as was true of the across-situation results, the effects of Race and SES are few and specific. Among target children, the black children use more CAP reflections, and the white children use more attentional devices. There are no significant effects of race or SES among mothers. Among adults in the home situation, whites use more intentions and desires reflections, and middle-class adults use more non-reflections. (A Race x SES interaction on affective reflections also indicates that white middle-class and black working-class adults use more affective reflections than do black middle-class and white working-class adults.) Thus, there is no indication that there are overall differences by social class or race in the extent to which children are exposed to internal state word use in the home.

In the speech of the adults in the children's school environment, a similar situation holds. There is a main effect of race on nonliteral usages, a main effect of SES on perceptual reflections, and a Race x SES interaction on cognitive reflections and affective reflections; but there are no overall effects of race or SES on the superordinate categories reflections, semantic usages, or internal state words. In our sample, therefore, there are no differences by race or SES in the overall internal state word use that children are exposed to in the school situation.

It must be noted that because many of the target children attended the same preschool class as other target children from the same race/SES group, the sample of teachers and school environments is not as broad as the sample of children, mothers, and home environments. Therefore, any inferences about the differences in the school environments of children from different social groups are extremely tentative.

There are, however, significant effects of race in the speech of the target children at school. As was also indicated by the Situation x Race interaction in the across-situation analyses discussed above, the black target children use fewer semantic usages and internal state words than the white target children at school, even though there is no such racial difference in the home situation.

The Influence of Adult Internal State Word Use on Target Children

Having now presented data on variation in the target children's use of internal state words, we want to see to what extent this variation can be accounted for in terms of other measurable aspects of the target children's communicative environment. We will start by looking at the internal state word use of the adults whose speech the target children hear at home and in school. There are two basic reasons why we might expect the internal state word use of the target children to resemble that of the adults in their environment. First, since the children are learning the language largely from the adults in their environment--especially the home environment--one would expect similarities between adults and children in at least

some aspects of their speech. Second, both the adults and children in a given situation may be similarly affected by some aspect of the situation that influences internal state word use (for example, the general topic of conversation).[2]

One measure of similarity between the internal state word use of children and adults is to compare the patterns of means. In Table 5, for example, it can be seen that the racial differences in the target children's use of attentional devices (white children use more of them than do black children) is found in the speech of their primary caregivers as well. On the other hand, the Situation x Race interaction on semantic usages and internal state words found in the speech of target children (see Table 4) is not present at all in the speech of their primary caregivers or of the adults in their environment in general. As might be expected, certain aspects of the children's internal state word use mirror that of the adults in their environment more closely than others.

Correlational Analyses

The relationship between the speech of target children and the speech in their environments was investigated in more detail in terms of correlational analyses. For each variable indicating an aspect of internal state word use, correlations were performed to determine to what extent the speech of the target children resembled the speech in their environments, as represented by (a) the primary caregivers (teacher and mother), (b) all

adults in the environment, and (c) all speakers in the environment. These correlations are shown in Table 8.

Insert Table 8 about here.

It is interesting to note that all the significant correlations are positive, and, with the exception of the significant positive correlation between the target child and total environment at home for semantic usages, all the significant relationships involve reflections, or some subcategory of reflections. Specifically, at school there is a significant correlation between the target child and his or her adult environment for affective reflections, perceptual reflections, CAP reflections, intentions and desires reflections, and all reflections. At home, there is a significant correlation for every category of reflections; that is, for all those significant for the school environment as well as cognitive reflections. Because reflections, by definition, are intimately related to the speaker and/or hearer in the current situation, it appears reasonble to hypothesize that the "immediacy" of reflections--that is, the fact that they refer to the speaker's or addressee's own current internal state--leads them to show a high degree of correlation between the target child and its environment. Because they are especially related to the "here and now," they may be more strongly influenced by situational factors such as the general subject matter that affect all participants in the conversation in a similar fashion.

As can be seen in Table 8, the speech of the target children generally correlates more strongly with the speech of all adults than with the speech of the primary caregiver alone, and more strongly still with the speech of all speakers in the environment.

Table 9 presents these same correlations, computed across situation. These correlations reflect the degree to which the speech of the target child at school is influenced by the speech in the home environment, and the degree to which the speech of the target child at home is influenced by the speech in the school environment.

Insert Table 9 about here.

A comparison of Tables 8 and 9 reveals that, in general, any similarity between adults' and children's internal state word use is within situations, rather than between situations. The internal state word use at home does not have a measurable influence on the child's speech at school; similarly, the internal state word use in the school environment does not have much influence on the target child's speech at home. One exception to this is that the target child's use of cognitive reflections at home correlates positively with the use of cognitive reflections in the school environment, regardless of the particular definition of the environment (teachers, adults, or all speakers). The target children's overall use of internal state words at home also correlates with the use of internal state words by adults in the school environment. The only significant influence of the

home environment upon the target children's speech at school is represented by a positive correlation between the target children's nonliteral usages at school and the nonliteral usages of the total environment at home.

The sharp contrast in magnitude of correlations between Tables 8 and 9 suggests that the target child's use of internal state words, to the extent that it is influenced by the speech of adults in the target child's environment, is largely accounted for by the internal state word use of adults within the situation. Very little of the target child's use of internal state words in school can be predicted from the speech that the child is exposed to in the home, nor can his/her use of internal state words at home be predicted from the internal state word use he/she encounters at school.

Between-Variable Correlations

Table 8 shows that the internal state word use of the adults in the environment does have an influence on the target children's internal state word use. However, Table 8 reports only correlations between a given variable for the adults and the same variable for the target children. One might ask, however, whether there are any significant between-variable relationships--whether, for example, the adults' nonliteral usages had any influence on the children's use of reflections, or whether the adults' use of reflections might be related to the target children's overall use of internal state words. Tables 10 and 11 present these correlations, within the home and school situations, respectively.

Insert Tables 10 and 11 about here.

An inspection of these tables reveals that there are very few significant correlations beyond those already represented in Table 8, or those that are predictable from Table 8 (e.g., the correlation of target children's affective reflections with adults' reflections). The only other significant correlations concern the adults' nonliteral usages. At home, the more nonliteral usages there are in the speech of the adults, the fewer perceptual reflections, intentions and desires reflections, and reflections in general there are in the speech of the target children. At school, the more nonliteral usages in the speech of the adults, the fewer affective reflections in the speech of the target children.

Racial Differences in Correlations

Examination of the results of the Situation x Race x SES ANOVAs presented in Table 4 showed that the Situation x Race interaction on the variables reflections, semantic uses, and internal state words in the speech of the target children was not found in the speech of the adults in their environment. This suggests the possibility that the relationship between the speech of target children and adults might be different for the black and white target children. Correlational analyses were therefore performed separately for the two racial groups to measure to what extent the internal state word use of the children in each group resembled the internal state word use of the adults in their environments. The results of these analyses are presented in Tables 12 and 13.

Insert Tables 12 and 13 about here.

In only one case are the differences between the adult-child correlations for the two racial groups in Table 12 significant: The correlation between adults and children for reflections is higher for the black families than for the white families. However, substantial differences in the same direction are found for semantic usages and internal state words as well. Thus, in the home situation, the internal state word use of the black children resembles that of the adults in their environment more than is the case for the white children, especially for the variable reflections. This might be interpreted as suggesting a somewhat greater degree of involvement or interaction between adults and children in the black families.

In school, however, the situation is quite different, as can be seen in Table 13. Here there are three variables--cognitive reflections, semantic usages, and internal state words--for which the correlations between target children and adults in the school environment are significantly higher for whites than for blacks. The internal state word use of the white target children at school correlates highly with that of the adults in the classroom for a number of variables; but for the black target children, there are no significant positive correlations between children and adults in the classroom except for affective reflections. This suggests that in the case of the white target children there is a greater degree of mutual adjustment between the speech of children and teachers, perhaps based on a greater

degree of involvement, or on some difference in teaching styles and interaction patterns in the classroom.

To summarize, Tables 8, 9, 12, and 13 give us an indication of the ways in which internal state word use by the adults in the target children's environments influences the internal state word use of the target children. First of all, we have seen that the strongest influences of internal state word use in the child's environment on the child's own internal state word use are within-situation rather than across-situation. The internal state word use to which the child is exposed at school influences his/her internal state word use at home only to a very limited extent; and the internal state word use in the home has almost no measurable effect on the child's internal state word use in school.

Within the home situation, there is some difference in the pattern of correlations between target children and adults, depending on the race of the target child. For whites, the only significant correlations between adults and target children are for cognitive and affective reflections. For blacks, there are significant correlations between children and adults for reflections and semantic usages as well. At school, there are significant correlations between children and adults for the white target children for cognitive reflections and intentions and desires reflections, and most important, for the three superordinate categories: reflections, semantic usages, and internal state words. The only significant positive correlation between children and adults found for the black target children at

school involves the variable affective reflections. These findings suggest that the internal state word use of adults does account for a certain amount of the variance in internal state word use among target children, but it does not account for the less frequent use of reflections, semantic usages, and internal state words in general by the black target children at school. Rather, the less frequent use of these categories by the black target children at school has something to do with the fact that their speech at school (unlike their speech at home, and the speech of the white children at school) does not correlate with the speech of the adults in their environment.

Home-School Correlations

One specific hypothesis we are interested in evaluating in terms of our data is that children from nonmainstream backgrounds experience a discontinuity or mismatch between the internal state word use of adults at home and that which they encounter in the speech of adults at school. This might be the case, for example, if there were great differences by race or SES in the use of internal state words at home, but not much difference between the type of internal state word usage encountered by children from the different groups at school. In this case, some children (presumably the "mainstream" or middle-class children) would experience a fair degree of continuity between the internal state word usage encountered at home and at school. Other children, nonmainstream or minority poor children, would find that the internal state word use of adults at school

was quite different from what they had experienced at home. Our data give no support for this hypothesis. As was seen in Table 5, there are only a few, very specific effects of race or SES in the internal state word use of adults either at home or at school. Any home-school discontinuity would show up as a Situation x Race, Situation x SES, or Situation x Race x SES interaction in the speech of adults. There are a few such significant interactions (see Table 4), but except for those involving nonliteral usages, the pattern of means involved are not consistent with the mismatch hypothesis (e.g., the home-school difference is greater for the white middle-class mothers and teachers than for the other race/SES group). Therefore, except for the case of nonliteral usages, there is no evidence of a home-school mismatch in the internal state word use of adults for the nonmainstream children in our sample.

Indirect evidence for a mismatch could be found by comparing the speech of the target children at home and at school to assess the degree of continuity between home and school in terms of their internal state word use. Table 14 presents the correlations between the target children's home and school internal state word use, calculated separately for the two racial groups.

Insert Table 14 about here.

Table 14 does in fact show a pronounced difference between the two racial groups. For four variables--intentions and desires reflections,

reflections, semantic usages, and internal state words--the white target children show a significant similarity in their speech between home and school. It can be noted that the last three of these four are superordinate categories representing an increasingly general picture of internal state word use. However, there are no significant correlations between home and school for the black target children, and the differences in the magnitude of correlations between home and school for blacks and whites are significant for these same four variables. For these variables, then, the white target children show a high degree of similarity between their internal state word use at home and at school. This suggests that for those factors controlling internal state word use they are also experiencing a definite continuity between the home and school environments. For the black target children, on the other hand, there is no measurable similarity between their internal state word use at home and at school. This seems to suggest that, with respect to those aspects of the environment that influence internal state word use, they are experiencing some discontinuity or mismatch between the home and school situations.

SES Differences in Correlations

In light of the above results (Tables 12-14), parallel analyses were performed comparing correlations calculated separately for the two SES groups. Tables 15 and 16 show the correlations between the internal state word use patterns of target children and the adults in their environment,

at home and at school, respectively. As can be seen in these tables, none of the differences in correlations between the middle and working classes

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Insert Tables 15 and 16 about here.

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are significant either at home or at school. Thus, SES does not seem to play a role in determining the way in which the target children relate to the internal state word use of the adults in their environment, either at home or at school. It must be noted, of course, that in two cases there are correlations which reach significance for the middle class but not the working class. At home, there is a significant positive relationship between the semantic usages of the target children and those of the adults in their environment for the middle class; at school, there is a positive relationship between the use of reflections by the middle-class target children and the adults in their classrooms. However, in neither case is the difference between the correlations for middle-class and the working-class significant.

Also of interest is the degree of similarity between the target children's internal state word use at home and at school. Table 17 presents the correlations for the different internal state word variables between the children's home and school internal state word use patterns. In this case, none of

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Insert Table 17 about here.

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the differences between correlations for the two SES groups are significant. However, the patterns of correlations differ in an interesting way: The

middle-class children show a similarity between home and school in their use of affective reflections and attentional devices, while the working-class children have a similarity between home and school in their use of intentions and desires reflections and nonliteral usages.

In general, these results, taken together with those in Tables 12-14 suggest that race is a more important factor than SES in determining the target children's adjustment to the classroom situation.

Situational Factors

Thus far we have seen that variance in the children's internal state word use can only be accounted for to a limited extent in terms of the internal state word use of the adults in their environment. Specifically, the adults' internal state word use offers no explanation at all for the Situation x Race interaction on reflections, semantic usages, and internal state words in the speech of the target children. We therefore want to investigate the influence of other factors on the target children's internal state word use.

From the information available from our coding forms, and from other analyses performed on our corpus, we defined variables representing different aspects of the organization of communication in the home and school situations. These variables fall into two basic classes:

1. Overall measures of particpation in the conversation by different individuals and groups. First of all, there are measures of what percent

of the total number of turns spoken in a given situation were spoken by which speakers. These variables are: (a) target child's percent of turns; (b) primary caregiver's percent of turns; (c) experimenter's percent of turns; and (d) percent of turns spoken by adults (as opposed to by children). We also computed the number of turns spoken by the target child, and the number of adults present. (The latter measure was calculated for the dinner situation, as were percent of turns spoken by adults and percent of turns spoken by experimenter.)

2. Measures based on the percentage of internal state words directed to a specific addressee. One variable in this group is the percentage of the primary caregiver's internal state words addressed to the target child. We do not have information as to the addressee of turns not containing an internal state word, but it seems safe to assume that the percentage of internal state words addressed by the mother to the target child reflects fairly accurately the percentage of the mother's overall turns addressed to the target child. Thus, this measure is an indication of how "target-child-centered" the primary caregiver's speech is. A similar variable represents the percentage of internal state words by all speakers addressed to the target child.

Another measure is the percent of the primary caregiver's internal state words addressed to children (as opposed to adults). This might be considered a measure of the "child-centeredness" of the primary caregiver's speech. When the target child is the only child present (as is the case

in some dinners), this variable is equivalent to the percentage of the primary caregiver's internal state words addressed to the target child. In any case, these two variables overlap substantially. One last variable is the percentage of internal state words by the teacher addressed to the children as a group, as opposed to children individually. This is an indication of the "group orientation" vs. the "individual orientation" of the teacher.

Tables 18 and 19 represent the interrelationships among these variables. The relationships among these variables are largely what would be expected.

Insert Tables 18 and 19 about here.

For example, the greater the proportion of the mother's internal state words addressed to the target child, the larger the target child's percent of turns in the situation. The causality would appear to run in both directions in this case. Many of the other correlations are due to the fact that the variables overlap by definition; for example, the greater the percentage of internal state words the mother addresses to the target child, the greater the percentage of internal state words she addresses to children in general.

A few of the correlations reveal more interesting, and perhaps less obvious, things about the structure of the interactions. For example, at dinner, the mother and experimenter seem to compete for turns, so to speak, since the greater the percentage of turns taken by the experimenter, the smaller the percentage of turns taken by the mother. This might almost

appear to be a matter of mathematical necessity; however, a quite different relationship holds between the mother and the target child in that the greater the percentage of turns taken by the mother the greater the percentage of turns taken by the target child. (Note that such a relationship does not hold between the target child and teacher at school.)

At school, the relationships are again what might be expected. The more internal state words the teacher addresses to the target child, the more turns the target child takes. Moreover, the more "group oriented" the teacher's interaction with the children, the fewer internal state words the teacher addresses to the target child individually.

The Influence of Situational Factors on Internal State Word Use

Having identified these measures of patterns of interaction at home and in the classroom, we now want to determine what their relationship is to the target children's use of internal state words. Table 20 examines this question with respect to the percentage of internal state words addressed to the target child by both the primary caregivers and all speakers in both situations. This variable is, in effect, a measure of

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Insert Table 20 about here.

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how target-child-centered the conversation (or at least its internal state component) is. An inspection of this table reveals that the percentage of internal state words addressed to the target child relates only to the target child's pragmatic uses (attentional devices and nonliteral usages)

and the supercategories of semantic usages and internal state words. The least expected of these correlations is the negative relationship between percentages of internal state words addressed to the target child by all speakers present at dinner and the target child's total number of semantic uses. There is no obvious reason why those children to whom more attention is devoted by all speakers in the home environment should use fewer semantic usages. As can be seen in Table 18, the percentage of turns in the situation spoken by the target child correlates positively with the percentage of internal state words by all speakers addressed to the target child in the home. One might expect that the target child who receives more attention from other speakers, and who has a larger share of the conversation, would be more likely to produce semantic usages, that is, to talk about thoughts, feelings, and intentions. However, our data indicate that this is not the case.

The remainder of the significant correlations in Table 20 are of a more expected and understandable nature. For primary caregivers, regardless of situation, the percentage of internal state words addressed to the target child correlates positively with the target child's use of attentional devices. This implies that the larger proportion of the mother's or teacher's attention he/she has, the more likely the target child is to say, for example, "Look!" Similarly, the more attention the target child has at school from the teacher or from all speakers (in terms of the percentage of internal state words spoken that are addressed to him/her) the more likely he/she

is to use internal state words in the nonliteral usage category. Finally, the percentage of the teacher's internal state words that are addressed to the target child is positively correlated with the target child's use of internal state words in general. In light of the other correlations, this increase in use of internal state words on the part of the target child probably consists largely of an increase in the number of attentional devices and nonliteral usages. In general, then, it appears that greater attention paid to the target child (in terms of the percent of internal state words spoken that are addressed to the target child) relates to greater use of attentional devices by the target child both at home and at school, and also to greater use of nonliteral usages at school.

A possible explanation for the strong effect of situational indices on the target child's use of the pragmatic (as opposed to semantic) categories might relate to the function of the pragmatic usages. Pragmatic uses of internal state words have functions relating to the flow of discourse, often in terms of directing, getting, or maintaining the listener's attention. Attentional devices, of course, are clearly attempts to get the listener's attention or to direct it to some specific object. One might suppose that a child would use attentional devices if he or she were not getting enough attention, but our findings suggest the opposite--it is in those situations where the target child is the recipient of more attention that he or she is more likely to try and regain or direct the listener's attention by saying, "Look!" A hypothesis based on causality in the other direction

is not implausible either, however. It might be that the target child who aggressively demands attention by frequently saying, "Look!" also ends up being the addressee of a greater proportion of the internal state words spoken in the situation.

Nonliteral usages also involve the attention of the listener to some extent. For example, conversational devices like you know or you see, while they may also have other discourse functions (e.g., they may serve as pause-fillers) also function as attempts to maintain the listener's attention. Rhetorical questions also serve as means of getting or heightening the listener's attention. The correlational findings suggest that (at least at school) nonliteral usages are used more by the target child who has a larger share of the attention of the teacher and of others. Thus, nonliteral usages might be used, not to get attention when the target child is not receiving any, but to maintain the attention of listeners with whom the target child is already interacting.

Table 21 presents the results of correlational analyses on the other situational variables defined in terms of the percentage of internal state words addressed to a given person or group. The specific variables included are: (a) percentage of the mother's internal state words addressed to children; (b) percentage of the teacher's internal state words addressed to children; and (c) percentage of the teacher's internal state words to children that are addressed to the group rather than to individuals.

Insert Table 21 about here.

The first two of these variables can be seen as measures of the child-centeredness of the speech of the primary caregiver while the third variable can be seen as a measure of the group vs. individual orientation in the teacher's interaction with children in the classroom. Interestingly, the proportion of internal state words by the teacher or mother that are addressed to children does not correlate significantly with any of the measures of the target child's internal state word use. (In some sense, these results are not particularly surprising, since there is a substantial overlap between the proportion of the primary caregiver's internal state words addressed to children in general and the proportion of the primary caregiver's internal state words addressed specifically to the target child. At home, the only significant correlation between the proportion of the mother's internal state words addressed to the child with the target child's internal state word use involved attentional devices. At school, there is little variation among teachers in the percentage of internal state words directed to children; therefore, one would not expect any significant correlations of this variable with the target children's internal state word use.)

Significant correlations do occur, however, for the variable representing the "group-centeredness" of the teacher; that is, the proportion of the teacher's internal state words to children that were addressed to children as a group as opposed to individual children. This variable relates negatively to the target children's use of both attentional devices

and nonliteral usages. In other words, the less individual-oriented the teacher's patterns of interaction in the classroom, the fewer attentional devices and nonliteral usages the target child uses. This is essentially the same relationship as was found in Table 20.

We now turn to those variables representing the way the total number of turns spoken in the conversation is divided up among the various speakers. The correlations of these variables with the indices of the target children's internal state word use are presented in Tables 22 (home) and 23 (school).

Insert Tables 22 and 23 about here.

Although the absolute number of turns taken by the target child at dinner does not correlate with any of the internal state word use variables, the percentage of turns by the target child correlates with the target child's use of attentional devices. Judging from this finding and the results in the previous several tables, it appears that attentional devices are one of the aspects of the target child's internal state words use that is most sensitive to the degree to which the target child is included in, and participates in, the conversation.

Although the percent of turns taken by the mother does not correlate with any of the indices of the target child's internal state word use, the percent of turns taken by adults does appear to have a substantial effect on the internal state word use by the target child. There are significant negative correlations between the percentage of turns spoken by adults and

the target child's use of perceptual reflections, intentions and desires reflections, reflections in general, semantic usages, and all internal state words. In each of these categories, the greater the proportion of the turns in the conversation taken by adults, the proportionately fewer internal state words the target child uses. Exactly why this is so is not immediately clear. As can be seen in Table 18, the percentage of turns in the conversation taken by adults does not correlate significantly with any other of the variables representing the participation and inclusion of individuals in the conversation. Therefore it is not the case, for example, that the greater the proportion of the turns taken by adults, the smaller the proportion of the turns taken by the target child. Similarly, the percentage of turns spoken by adults has no relationship to the percentage of the total internal state words by all speakers that are addressed to the child. One possible explanation might be that a greater proportion of turns spoken by adults would mean that the conversation would tend to have a more adult-oriented subject matter. This could change the quality of the target child's contribution to the conversation (i.e., he/she might use fewer internal state words) without affecting its quantity.

Table 22 also shows that there is no relationship between the target children's internal state word use and either the number of adults present at dinner or the percentage of the turns at dinner spoken by the experimenter. The latter finding is important because it indicates that the greater participation by the experimenter in the black family dinner conversations

than in the white family conversations had no measurable effects on the speech of the target children.

In the school situation (see Table 23), unlike the dinner situation, the absolute number of turns taken by the target child has considerable influence on that child's use of internal state words. The target children who talked more also used proportionately more cognitive reflection, non-reflections, semantic usages, and internal state words. The results are similar, but not identical, when one considers the proportion of turns spoken by the target child. The target child who takes a larger share of the conversation at school (or, perhaps, the target child who is given a larger share of the conversation at school) uses more nonreflections, attentional devices, nonliteral usages, and internal state words in general. (We have already mentioned reasons why the target children who get more attention might use more attentional devices and nonliteral usages. It is also clear from Tables 18 and 19 that, both at home and school, the target child to whom a larger proportion of the internal state words in a situation is addressed also accounts for a larger percentage of the turns spoken in that situation. Thus, it is to be expected that a target child having a larger share of the conversation would use more attentional devices and nonliteral usages. This is the first time, however (with the exception of the negative correlation in Table 13, which is not easily interpreted), that there has been a significant relationship found between nonreflections and any other variable.

Finally, Table 23 also presents the correlations between the target child's internal state word use and the percentage of turns taken by the teacher. All the significant correlations between them are negative: The greater the proportion of the turns in the classroom that the teacher takes, the fewer affective and intentions and desires reflections, nonreflections, semantic usages, and internal state words in general the target child uses. This pattern of correlations is similar to that involving percentage of turns taken by adults in the home (see Table 22). Both at home and at school, adult "domination" of the conversation seems to inhibit the target child's use of internal state words, both as a whole and in terms of several of the subcategories.

In general, the effects of situational factors on the target children's internal state word use (Tables 20-23) might be summarized in the following manner. The degree of (individual) attention (in terms of how many of the internal state words in the situation are actually addressed to the target child) that the target child receives influences the target child's use of attentional devices at home, and both attentional devices and nonliteral usages at school. The relationships here thus seem to involve chiefly the pragmatic uses of internal state words by the child, although there is the unexplained negative correlation with semantic usages in Table 20, and also a significant correlation between percent of teacher's internal state words addressed to the target child and all internal state words used by the child.

The way the turns of the conversation are apportioned among the speakers seems to have more of an influence on the target child's internal state word use in general than does the relative amount of internal state words addressed to the target child. On the one hand, the greater the proportion of turns taken by the teacher at school, or adults at home, the fewer internal state words the target child uses both overall, in terms of semantic usages, and also in terms of several other subcategories. On the other hand, the greater the proportion of turns in the situation that the target child takes, the more internal state words the target child uses. At home, the effect is limited to attentional devices, but at school, the target child with a larger share of turns uses more internal state words in general, attentional devices, nonliteral usages, and also nonreflections.

Effects of Home and School Environments on Children's Speech in School

The findings just discussed describe the effects of certain aspects of communication patterns in a situation on the speech of the target children in that situation. However, the mismatch model presumes that there are also cross-situational effects. Specifically, we want to look for ways in which patterns of communication at home may influence the child's response to the school situation. Tables 24, 25, and 26 present correlations between indices of the patterns of communication at home and school and the target children's internal state word use at school.[3]

Insert Tables 24, 25, and 26 about here.

For some variables, of course, there are only within-situation effects. For example, the target child's internal state word use at school correlates with the number of turns spoken by the target child at school, but not with the number of turns the target child speaks at home. Similarly, the target child's school internal state word use correlates with the percentage of turns taken by the teacher, but not with the percentage of turns at dinner spoken by the mother. Nor do the number of adults present at dinner, the percentage of turns at dinner spoken by adults, or the percent of turns at dinner spoken by the experimenter have any influence on the target children's internal state word use at school.

The remaining four variables, however, do evidence cross-situational correlations. The higher the percentage of the mother's internal state words addressed to the target child at home, the more nonreflections the target child uses in school. The higher the percentage of the mothers internal state words addressed to children in general, the more nonreflections, attentional devices, and internal state words the target child uses at school. The higher the percentage of internal state words by all speakers that are addressed to the target child, the more attentional devices the target child uses at school. And the greater proportion of the turns at home that the target child has, the more nonreflections and internal state words the child uses at school.

The influence of the home environment on the child's use of nonreflections in school is noteworthy. The more attention the target child receives (in terms of internal state words), and the larger the target child's share

of the conversation at home, the more nonreflections he/she uses at school. This is interesting, first of all because these same factors do not correlate significantly with the target child's use of nonreflections at home, and secondly because of the possible developmental implications of use of nonreflections. Nonreflections involve more displacement or abstraction than reflections, and hence may indicate a more advanced type of usage.

An important implication of the pattern of correlations in these tables is the specific nature of the influences of home and school environments on children's speech. First of all, most of the influences are situation specific; for example, the percentage of the mother's internal state words addressed to the target child influences the target child's use of attentional devices at home, but nonreflections at school. Secondly, as this same example also illustrates, specific aspects of the communication patterns in a situation can affect very specific aspects of the child's speech. Any model of the influence of home and school environments on children's speech must therefore allow this degree of specificity and detail. Overall measurements like Mean Length of Utterance (MLU) will be far too crude to assess the effects of situational factors on patterns of language use (cf. Cole, Dore, Hall, & Dowley, 1978).

Situational, Racial, and Socioeconomic Differences in Patterns of Communication

Our first analyses of correlations between the internal state word use of the target children and that of the adults in their environment (Tables 8-13, and 15-16) show that the internal state word use by adults does appear

to influence that of the target children, but only to a certain extent and in certain respects. For example, in these tables there are no significant positive correlations between the use of nonreflections by the target children and the use of nonreflections by the adults in their environment. However, the corresponding correlations for reflections are significant in several cases. An important fact about the correlations between internal state word use by target children and adults is that they appear to offer no explanation at all for the Situation x Race interaction found in the speech of the target children on the variables reflections, semantic usages, and internal state words. Since this interaction is of great theoretical interest, we have investigated variables representing the structure of patterns of communication to see how these relate to the use of internal state words by the target children.

Correlations between the target children's internal state word use and various indices of the patterning of communication at home and school (Tables 18-26) indicate that differences in the way communication is structured have a substantial influence on almost all aspects of the target children's internal state word use. To determine whether differences in the patterning of communication would account for the Situation x Race interaction in the speech of the target children, ANOVAs were performed on the variables measuring the structure of communication. As with the internal state word variables, both Race x SES (within-situation) and Situation x Race x SES analyses were carried out.

Table 27 presents the results of these ANOVAs for the percentage of internal state words (by all speakers in the target child's environment) addressed to the target child. This variable is a measure of the target-child-centeredness of the overall conversation. The two significant main effects in Table 27a, for situation and race, indicate that more internal state words are addressed to target children at home than at school, and to white children than to black children. The nature of the three-way interaction is rather complex and is perhaps best discussed below, when we consider the within-situation ANOVAs for this variable.

Insert Table 27 about here.

In the within-situation Race x SES ANOVAs summarized in Table 28b and c, a main effect of race in both situations shows that the white target children are the addressees of a greater percentage of the internal state words spoken in their environment than the black target children, and substantiates the race effect found in the between-situation ANOVA (see Table 27a). The significant Race x SES interaction at school reflects the fact that there is an extreme racial difference in the working class, with the whites having the higher mean, whereas there is no racial difference in the middle class. At home, the difference in means between the races is approximately the same for both socioeconomic groups.

Table 28 presents results parallel to those in Table 27 except for the fact that they represent the speech of the primary caregivers (mothers

and teachers) rather than the speech of all speakers in the environment. The results of these analyses are very similar to those found for all speakers (see Table 27). As before, a greater percentage of the internal state words are addressed to the target children at home than at school, and to white than to black children (regardless of situation). The only difference lies in the fact that the three-way interaction in the between-situation analysis and the Race x SES interaction at school were not significant for primary caregivers (Table 28a and c), as they were for all speakers (Table 27a and c).

Insert Table 28 about here.

Table 29 presents the results of between-situation and within-situation ANOVAs on the percentage of the primary caregiver's internal state words addressed to children, as opposed to adults. This variable can be interpreted as a measure of the child-centeredness of the conversation at home or at school.

Insert Table 29 about here.

The strong main effect of situation indicates that, as expected, teachers at school must devote a larger proportion of their speech to children than do mothers at dinner. This Situation x Race interaction indicates that there is a racial difference at home, but not at school. At home, white mothers direct a higher proportion of their internal state

words to the target child than do the black mothers; at school, there are no significant differences by race or SES.

Another variable, measured only in the school situation, is the percentage of the teacher's internal state words to children that are addressed to the children as a group rather than to individuals. There is a significant main effect of race on this variable, $F(1,33) = 11.78$, $p < .01$, which indicates that the teachers of the black target children were more group oriented in their approach than were the teachers of the white target children. The main effect of SES, as well as the interaction of SES with race, were both nonsignificant for this variable, $F(1,33) < 1$ for both.

Table 30 gives the results of within-situation Race x SES ANOVAs for the variables, introduced in the previous section, that reflect the distribution of turns among different speakers in the home and school situations. As can be seen in this table, there are no significant effects for either the number of turns taken by the target child (an indication of the absolute amount of speech by the child), the percentage of turns in either situation taken by the target child, the percentage of turns at home spoken by adults, or the number of adults who took part in the conversation at dinner.

Insert Table 30 about here.

The main effect of race on the percentage of turns taken by the mother indicates that white mothers tended to have a larger share of the conversation than did black mothers. At school, the Race x SES interaction for

this same variable reveals that the teachers of black middle-class and white working-class target child had a larger share of the conversation than did the teachers of the white middle-class or black working-class children. Finally, there was a significant race effect on the percentage of the turns in the dinner situation spoken by the experimenter. This simply reflects the fact, mentioned earlier, that in the case of black families, the experimenter was frequently invited to join the family for dinner whereas in the white families such an invitation was normally not extended or accepted.

As can be seen in Table 22, the percentage of turns spoken by the experimenter had no measurable influence on the speech of the target child at dinner. Nevertheless, at least part of the consistent pattern of racial differences in the dinner situation might be related to the presence of the experimenter. For example, a higher percentage of internal state words spoken by mothers are addressed to target children by the white mothers than by the black mothers. This can probably be explained at least partially by the fact that the black mothers were undoubtedly addressing part of their speech to the experimenter. The same explanation probably accounts for the parallel racial effect found for percentage of all speakers' internal state words addressed to the target child. The influence of the experimenter (in terms of the percentage of turns at dinner spoken by him) on other indices of the structure of communication at dinner can be seen in the correlations presented in Table 18.

In light of the differences in situational factors that may stem from the presence of the experimenter in the black families at dinner, one might wonder whether this source of contamination does not render all our results uninterpretable or artifactual. There are several facts, however, which suggest that this is not the case. First, as discussed earlier, the correlational data show no relationship between the presence of the experimenter at dinner and the internal state word use of the target children in that situation. Second, the racial differences that are of the greatest theoretical interest in our results appear not in the home but at school, where the experimenter was present (although not taking part in the classroom interaction), regardless of race. Moreover, it is very unlikely that the presence of the experimenter at one or two dinners with a given family could have had a significant influence on the target child's verbal behavior at school, especially in light of the fact that the experimenter was in frequent contact, apart from dinners, with each of the target children (regardless of race) during the two days of taping. Finally, there were no main effects of race on several of the important indices of patterns of communication at home; specifically, the number and percentage of turns spoken by the target child, the percentage of turns at dinner spoken by adults, and the number of adults taking part in the dinner conversation. It appears, therefore, that the presence and conversation of the experimenter in a nonrandom subset of the dinners influenced neither the target child's speech at dinner nor the way situational factors in school might affect the target child's speech at school.

Race and SES differences in the patterning of communication can be summarized in the following way: At home, the speech of primary caregivers is both more child-centered and more target-child centered for white mothers than for black mothers. The speech of all speakers is also more target-child-centered in white homes. In white homes, the mother has a larger proportion of the turns than in the black homes. The reverse is true for the experimenter.

At school, all teachers are about equally child-centered. However, teachers of the white target children devote a larger proportion of their internal state words to the target child than do teachers of the black target children. Teachers of the black target children, on the other hand, tend to have a more group-oriented style in the classroom.

Explaining the Effects of Race on Situational Variation

As mentioned earlier, the internal state word use of the adults appears to provide no basis for an explanation of the Situation x Race interaction in the speech of the target children--that is, the fact that the black target children use unexpectedly few reflections, semantic usages, and internal state words in general at school, compared to their own speech at home or the speech of the white target children at school. Since the variables representing the patterning of communication at home and school have been shown both to influence the use of internal state words by the target children, and to exhibit significant effects of race, we want to

consider to what extent these variables might be able to provide a basis for an explanation of the Situation x Race interaction.

For any variable representing some aspect of the target children's environment to serve as a possible explanation for the Situation x Race interaction, it has to meet three conditions:

1. There must be a significant correlation between that variable and at least one of the variables involved in the Situation x Race interaction in the speech of the target children--reflections, semantic usages, and internal state words. Moreover, the correlation would have to indicate that the factor involved influenced the internal state word use of the target children at school, since it is only in the school situation that the racial difference appears. The influencing factors could, of course, be part either of the school or the home environment.

2. The variable would have to show some significant effect of race--either a main effect of race, or a Situation x Race interaction.

3. The differences in means and correlations involved would have to be such that the differences in the speech of the target children at school were correctly predicted.

The following variables from the school environment meet the first of these three conditions, that is, they show significant correlations with the target child's use of reflections, semantic uses, and internal state words at school:

Reflections by teachers	(Table 8)
Reflections by all adults at school	(Table 8)
Percentage of teacher's internal state words addressed to target child	(Table 20)
Number of turns by target child	(Table 23)
Percentage of turns by target child	(Table 23)
Percentage of turns by teacher	(Table 23)

Of these, only the following shows significant effects of race:

Percentage of teacher's internal state words addressed to target child	(Table 28)

The main effect of race on this variable indicated that the teachers of the white target children devoted a higher percentage of their internal state words to the target child. The correlational data indicated that the greater the percentage of internal state words spoken by the teacher addressed to the target child, the greater the number of internal state words the target child would use. Therefore, the target-child-centeredness of the teacher would seem to be a potential cause or contributing factor to the Situation x Race interaction among the target children.

This variable could only contribute a limited amount to any such explanation, however. An examination of the correlations presented in Table 21 shows that the percent of the teacher's internal state words addressed to the target child does not have a measurable influence on the target child's use of reflections or semantic usages. Therefore, the Situation x Race interaction for these variables remains to be explained. In fact, the variation in internal state words involved in the correlation

in Table 20 may consist largely of variation in the use of attentional devices and nonliteral usages--two categories which do not show the Situation x Race interaction we are attempting to explain. Thus, we do not find an explanation of the Situation x Race interaction in terms of indices we have used to measure the speech and patterns of communication in the school environment.

We turn therefore to an examination of those variables from the home environment which, on the basis of our correlational data, seem to influence the target children's production of reflections, semantic usage, and internal state words at school. The following variables meet this condition:

Percentage of mother's internal state words addressed to children	(Table 24)
Percent of turns by child at home	(Table 25)

Of these, only one shows significant effect of race:

Percent of mother's internal state words addressed to children	(Table 29)

This variable is similar to the percentage of teacher's internal state words addressed to the target child, in that it correlates with the target children's overall use of internal state words, but has no relationship to the target children's use of reflections or semantic usages. Thus, it constitutes part of an explanation, but certainly does not completely explain the target children's speech patterns in the school situation.

The failure of our analyses to uncover a clear-cut and comprehensive explanation for the Situation x Race interaction is presumably due to the general and imprecise nature of our indices of the patterning of communication at home and school. We would hypothesize that an explanation would

have to incorporate measures of the nature and quality of interaction between primary caregivers and children, rather than simply measures of amount.

Summary of Results

1. Race and SES differences in internal state word use: Relatively few effects of race or SES on internal state word use were found in the speech of the adults in the home environment, adults in the school environment, or the target children at home. What differences were found involved specific subcategories (e.g., intentions and desires reflections) and not general supercategories of internal state word use (i.e., reflections, semantic usages, internal state words). However, a significant racial difference was found in the target children in the school situations: Black target children use fewer reflections, semantic usages, and internal state words in school than they do at home, and also fewer than do the white target children at school.

2. Correlations between adults' and children's internal state word use: At home, there are high correlations between the children's and adults' use of cognitive and affective reflections. In the black homes, there are also significant positive correlations between children's and adults' reflections and semantic usages. At school, there are significant positive correlations between children's and adults' speech for several of the internal state word variables for the white target children, but none for the black target children except affective reflections.

Correlational data shows a relationship between the speech of the target child at home and his/her speech at school for several internal state word variables for the white target children, while no such relationship is found for the black target children. Thus, the speech of the white target children at school relates significantly to both their own speech at home and to the speech of the adults in the school environment. The speech of the black target children at school, on the other hand, shows no relationship either to their own speech at home or to the speech of the adults in the classroom.

3. Effects of attention: The percentage of internal state words by the primary caregiver (or all speakers) that are addressed to the target child is taken as an indication of how target-child-centered the speech of that speaker is. Target children who receive more attention in this sense use more attentional devices and nonliteral usages. Also, the target children who receive more attention at home use more nonreflections at school. This might be taken as a sign of greater abstraction and hence more advanced linguistic or cognitive development.

4. Effects of apportionment of turns among speakers: When more turns are taken by adults at home, or by the teacher at school, the target child uses proportionately fewer intentions and desires reflections, semantic usages, and internal state words in that situation. (A few other specific variables are similarly affected within only one situation: perceptual reflections and reflections at home, and affective reflections and non-reflections at school.) When the target child has a greater proportion

of the turns at home, she/he uses more attentional devices; when the target child has a greater proportion of the turns at school, she/he uses more nonreflections, attentional devices, nonliteral usages, and internal state words. Also, the target child who has a larger proportion of the turns at home also uses more nonreflections and internal state words at school. (The same is true of the child whose mother is more child-centered in her use of internal state words.)

5. Effects of race and SES on communication patterns: At school, teachers of white target children tend to devote more individual attention (in terms of internal state words) to the target children, while the teachers of black target children tend to be more group-oriented. At home, it appears that the white mothers are both more child-centered and more target-child-centered than are the black mothers. Correlational data (Table 18) however, suggests that this may be, at least in part, due to the presence of the experimenter. It should also be kept in mind that the correlational evidence in Table 12 suggests that in some respects there is a greater degree of interaction and involvement between adults and children in the black families than in the white families.

6. Explaining the reduced use of reflections, semantic usages, and internal state words by black target children at school: The reduced use of internal state words by the black target children at school cannot be accounted for in terms of the internal state word use of the adults in their home and school environments, since there are no overall differences

by race or SES in the use of internal state words by adults either at home or at school. It can be accounted for in part by a difference in teaching styles, since the teachers of the white target children tend to devote more individual attention to the target children while the teachers of the black target children tend to be somewhat group-oriented. However, in terms of our correlational data, this will account for overall differences in the use of internal state words but not for the racial difference in the use of reflections and semantic usages found among target children at school.

Correlational data also suggests that less individual attention from the mother at home might contribute to less internal state word use at school among the black target children. Even if correct, however, this explanation like the one just mentioned would not account for the difference in school in the use of reflections and semantic usages. Also, the amount of attention received by the black target children at home may have been influenced by the presence of the experimenter at dinner.

7. Implications for the mismatch hypothesis: No evidence was found for any mismatch between home and school environments for minority or poor children, as far as the internal state word use of adults was concerned. However, the speech of white target children at school is related strongly both to their speech at home, and to the speech of the adults in the school environment. The speech of the black target children at school, however, shows no relationship either to their own speech at home or to the speech of the adults in the classroom. This suggests very strongly that: (a) the

black target children's relationship to the school situation is significantly different from that of the white target children; and (b) the relationship between the home and school environments is different in the experience of the black and white target children. This could be the result either of a home-school mismatch experienced by the black target children that is not reflected in the variables we have investigated, or of differential treatment of the two racial groups in school in terms of teaching styles or patterns of interaction. Our findings suggest strongly that such a mismatch or difference does exist, but not in the internal state word use of the adults as such. Rather, it appears that patterns of interaction, both at home and in the classroom, have significant effects on the use of internal state words by the children at school.

Discussion

Experience in Metabehavioral Analysis

One of the hypotheses under consideration in this research was that certain cultures may provide their children with greater experience and practice in metabehavioral awareness, thus giving them an advantage in classroom tasks which require the pupil to analyze and verbally describe the emotions, thoughts, and intentions of a person or fictional character. The use of internal state words--especially usages categorized as semantic--would seem to constitute important experience in metabehavioral analysis.

However, our results give no indication that children from different social groups are exposed to substantially different amounts of internal

state word use either at home or at school. There are no significant effects of race or SES on the variable semantic usages in the speech of adults in the target children's environment, either at home or at school. The effects of race and SES that are significant involve subcategories of semantic usages: Adults in the white families used more intentions and desires reflections than adults in black families, and adults in middle-class families used more nonreflections than adults in working-class families.

Intentions and desires reflections, like several other internal state word categories, were used more frequently by adults at home than at school. In the home situation, intentions and desires reflections very often were food-related utterances such as Do you want more milk? or I'd like some mashed potatoes. The main effect of race on the use of intentions and desires reflections may in part reflect the tendency, noted in Heath (in press) for white adults to use a higher proportion of questions than black adults when interacting with children. While this racial difference in the use of intentions and desires reflections might reflect a real racial difference in the role of questions in adult-child interaction, it would not seem to constitute a difference in terms of the child's experience in metabehavioral awareness.

It might be argued that the use of nonreflections in particular is more isomorphic to the task of discussing the motives and intentions of fictional characters, like those referred to by nonreflections, are displaced, that is, not part of the "here and now." Thus, the use of

nonreflections in the home might be taken as a more accurate measure of the degree to which the child is experienced in metabehavioral analysis.

There are grounds for considering the use of nonreflections as constituting a greater degree of abstraction; hence their use by target children might be associated with a higher level of cognitive or social developement. First of all, as can be seen in Table 31, nonreflections are one of the internal state subcategories for which adults show a higher level of per-word use than do children.

Insert Table 31 about here.

These effects of age are in line with the general progression of children's speech from an exclusive focus on the "here and now" to the past, future, and hypothetical (cf. Clark & Clark, 1977; Sachs, 1977). Mood (1979) presents evidence that preschool children perform better on simple comprehension tasks with sentences that involve their own names, and with their parents as participants, than with sentences about familiar human and animal characters. Undoubtedly this egocentric bias in comprehension has some parallel in the children's production. Along similar lines, Slobin (1973) reports that in languages which have an inflection marking the vocative case, this is one of the first grammatical markers to be acquired by children. The vocative case is in some sense a marker of the speaker-addressee relationship, which is a critical component in the definition of reflections.

Analyses of variance showed that middle-class adults at home used more nonreflections than working-class adults at home. While it is possible that the greater use of nonreflections by middle-class adults gives their children some advantage in school, this hypothesis receives no support from our data. For example, the use of nonreflections by adults does not correlate positively with any measure of internal state word use by the target children. Furthermore a Situation x SES interaction in nonreflections in the speech of target children reveals that the middle-class target children use fewer nonreflections at school than at home. At home, the mean for the middle-class target children is nonsignificantly higher than that of the working-class children; at school, it is nonsignificantly lower. Thus, the greater use of nonreflections by middle-class adults at home is not reflected in any way in the speech of their children at school.

The internal state word use of the target children themselves at home can also be taken as a measure of their experience in metabehavioral analysis. There are only two main effects of race on the speech of the target children at home, and no main effects of SES or interactions. The black target children used more cognitive, affective, and perceptual reflections taken as a group (CA&P reflections) than did the white target children, while the white target children used more attentional devices. (Attentional devices are a pragmatic usage and so do not relate directly to metabehavioral analysis.)

There is no indication in our data why the black target children used more CA&P reflections than did the white target children. For both white

and black children, the use of cognitive and affective reflections correlated with that of adults (see Table 14), but there were no main effects of race on these reflections in the speech of adults at home.

Once again, while there are some differences in internal state word use in terms of specific subcategories, the data from the home situation give no indication that any social group provides its children with significantly more or less experience than the others in metabehavioral analysis.

The black target children's reduced use of reflections, semantic usages, and internal state words at school suggests that these children were having less experience in metabehavioral analysis than the white children in the classroom situation. The fact that this difference is situation-specific shows that no general difference in ability or development is involved here. It would be pointless, for example, to institute a program aimed at teaching internal state words and concepts to the black children; the data from the homes show that they are at least as familiar with these words and concepts as are the white children.

The fact that this difference is situation-specific does not necessarily mean, however, that it has no real consequences for the children. First of all, language acquisition, especially in its early stages, appears to be situation-specific (cf. Gearhart & Hall, in press; Hall & Dore, 1980; Litowitz, 1977; Nelson & Brown, 1978; Shatz, 1978). The use of certain linguistic strategies or vocabulary items in a given context does not make their use in other situations and contexts automatic. Therefore, the use of internal state words in the classroom--even in preschool--is important preparation

for the metabehavioral analysis that figures significantly in much classroom discussion.

Secondly, the reduced use of internal state words by the black target children in school may be indicative of a more fundamental problem of communication in the classroom.

Two types of factors might contribute to the reduced use of internal state words by the black target children in school. On the one hand, the teachers of the black target children may focus on certain types of activities, for example, roll call, group singing, naming days of the week, and counting--which do not tend to elicit extensive internal state word use on the part of the child. (The transcripts suggest that this may be the case at least to some extent.) The children might be participating fully and competently in such activities, and still be using far fewer internal state words than they would use at home. On the other hand, it might be that the difference between home and school environments experienced by the black children might cause them to participate less fully and freely in interactions with the teacher. If the classroom situation is in any way more threatening or unfamiliar to the black children, it is understandable that they would devote less of their speech to communicating about their thoughts, feelings, intentions, and desires. Correlational data suggests that some more basic communication problem like this does play a part in the black children's reduced use of internal state words in the classroom.

A question of obvious relevance is whether these effects of race apply equally to both the working-class and middle-class black target children. Such a differential effect of SES among the black target children would appear in terms of a Situation x Race x SES interaction in the across-situation ANOVA. Table 4 shows that there are no significant interactions in this category.

However, an inspection of the means of the different race/SES groups in school shows that the black middle-class target children's mean is higher than the black working-class target children's mean for every internal state variable except for nonreflections and attentional devices. This is especially interesting since at home, the black working-class children's means are higher than the black middle-class children's means (nonsignificantly, again), for every variable except for cognitive reflections, nonreflections, and nonliteral usages. In fact, at home the black working-class target children have the highest mean of any of the four race/SES groups for affective and perceptual reflections, reflections, semantic usages, and internal state words.

The non-significance of the SES differences among the black target children, and the direction of the non-significant differences that occur, would rule out any hypothesis attempting to account for the low internal state word use of the black target children in terms of their response to white teachers. The black working-class children, who have exclusively black teachers, are influenced by the school situation to the same extent,

and perhaps somewhat more than, the black middle-class children, who have some white teachers.

Other Evidence Relating to Home-School Mismatches

Our data have failed to support one particular version of the mismatch hypothesis, namely, the hypothesis that the home environments of some non-mainstream children would provide them with less experience in metabehavioral analysis than did the home environments of white middle-class children. However, the results of our analyses do suggest that the black children in our sample experienced some sort of mismatch between home and school, although this mismatch did not directly involve the internal state word use of adults. Three types of evidence point to the existance of some sort of mismatch:

First, there is the reduced use of internal state words by the black target children in the school situation. While this finding permits more than one interpretation, it is certainly consistent with the hypothesis that the black children found the school situation different from the home situation in important ways.

Second are the racial differences in the adult-child correlations at home and at school. At home, there are some racial differences, and it is in the black families that there are the highest correlations between children's and adults' internal state word use. At school, on the other hand, racial differences are found for a larger number of variables, and it is the white children who show the highest correlation with their

teachers. Lack of correlation in internal state word use patterns does not mean lack of communication. However, differences in the degree of correlation between adult and child internal state word use does suggest differences in the nature of the communication. A high correlation between adult and child internal state word use suggests that both adults and children are being affected by situational factors--e.g., the topic of conversation and the activities the speakers are engaged in--in parallel ways. A lack of correlation indicates that the situational factors affect adults and children differently. Thus, a higher correlation could be interpreted as indicating a greater similarity or reciprocity between the roles of adults and children in the situation. A lack of correlation could indicate some breakdown in communication, or simply a greater degree of distinction between the roles of adults and children in the conversation.

A third type of evidence for some sort of home-school mismatch is found in the correlations between children's speech at home and children's speech at school (Table 14). For four internal state variables, the white children show a significant home-school correlation, while the black children show none. The white children's speech at school, then, is largely predictable from their speech at home; as far as internal state words are concerned, they seem to be using similar speech patterns in the two situations. The lack of correlation on the part of the black children indicates that not only do these children tend to use fewer internal state words in school, but also that their school internal state word use is not at all

predictable from their speech at home. This indicates that for the black children, the school situation demands a substantially different set of verbal strategies and skills.

Analyses of those indices of the patterns of communication for which we had information also failed to provide an explanation of the specific cause of the black children's reduced use of internal state words at school. Those factors for which there were main effects of race--e.g., the percentage of the teacher's internal state words addressed to children as a group as opposed to individuals, or the percentage of the mother's internal state words addressed to the target child--did not affect the children's use of reflections or semantic usages at school. Those factors which did influence the target children's use of reflections and semantic usages--e.g., the percentage of turns in the conversation taken by adults at home, or by the teacher at school--did not show any main effects of race.

However, while we failed to isolate specific differences in patterns of communication that would account for the racial differences in the children's internal state word use at school, we did show that the different functional categories of internal state words are sensitive to very specific kinds of situational factors. The racial difference in the children's speech at school should ultimately be tracable to particular teaching strategies or styles, or to some differences between home and school communication patterns. To identify these, though, would require detailed categories for coding mothers' and teachers' speech and behavior beyond the scope of the present study.

Differences Between the Internal State Word Variables

Even though internal state words constitute a relatively restricted subset of English vocabulary, they show significant differences among themselves in terms of the way they are affected by social and situational factors. For example, in Tables 8, 12, 13, 15, and 16 it can be seen that the speech of children and that of the adults in their environment tend to be similar with respect to their use of cognitive reflections and affective reflections. On the other hand, no significant positive correlation is found between children and adults for the variable nonreflections.

Two things might contribute to this difference. First, reflections are by definition closely tied to the "here-and-now" and might therefore be more influenced by situational factors such as the general topic of conversation and the activities of the participants. If such situational factors affected children and adults similarly, and affected reflections more than nonreflections, one would expect adults and children to show more similarity in their use of reflections. Second, nonreflections appear to involve a greater degree of abstraction than reflections, and hence perhaps a higher level of cognitive or linguistic development. Children use more reflections than adults, while adults use more nonreflections than children. Thus, it may be easier for children to imitate adults' usage of reflections than it would be for them to imitate adults' usage of nonreflections.

These differences between reflections and nonreflections do not explain, however, why children and adults resemble each other in their use of

cognitive reflections and affective reflections, but not in their use of perceptual reflections and intentions and desires reflections. In this case the difference must lie in the specific conversational functions associated with these categories.

Tables 8, 12, 13, 15, and 16 show that for attentional devices and nonliteral usages, as for nonreflections, there is never a significant positive correlation between adults' and children's speech. The reasons suggested for a lack of correlation between children's and adult's use of nonreflections may apply to nonliteral usages, but not to attentional devices. Adults use more nonliteral usages than do children. Nonliteral usages might also be considered "abstract" in the sense that they are nonliteral, and in some cases are understood in terms of conversational implications. Attentional devices, on the other hand, are used more frequently by children than by adults (although the difference is significant only in the home situation). Attentional devices are also anything but abstract; an exclamation such as "Look!" is very directly tied to the "here-and-now," perhaps more so than are reflections.

The lack of correlation between children and adults for both attentional devices and nonliteral usages might be explained in the following terms. While the use of nonliteral usages and attentional devices may be influenced some by the type of activity the participants are engaged in, these categories of internal state word use might tend to be less directly related to the topic of conversation than are, for example, affective reflections. An

utterance such as I don't like mashed potatoes (which constitutes an affective reflection) is likely to be closely tied to the general topic of conversation as well as the activities of the participants. Pragmatic usages--both attentional devices and nonliteral usages--are more directly related to discourse factors than to the subject-matter of conversation.

Tables 20 and 21 show that the target child's use of attentional devices and nonliteral usages is influenced by the amount of attention he or she receives, in terms of the proportion of internal state words that are addressed directly to the target child. Greater attention in this sense would tend to indicate that the target child is engaged in extended dialogues with a primary caregiver. It is this type of discourse context that seems to favor the use of attentional devices and nonliteral usages.

Interestingly enough, attention in this sense, although it has an effect on the child's use of attentional devices and nonliteral usages, does not influence any other of the internal state word variables. A partial exception to this is the correlation between the amount of attention the target child receives at home and the child's use of nonreflections in school. Another aspect of the structure of the conversation, the percentage of turns in the school situation taken by the child, influences the child's use of nonreflections, attentional devices, and nonliteral usages, but no other internal state word variables (except for the super-category internal state words, which includes all of these--cf. Tables 22 and 23).

Thus, different types of internal state word variables behave quite differently with respect to how they are influenced by situational factors. In general, it can be said that those factors which affect reflections and semantic usages do not affect nonreflections, attentional devices, and nonliteral usages. Conversely, those factors that influence the children's use of nonreflections, attentional devices, and nonliteral usages do not influence their use of reflections or semantic usages. There are of course further differences among the individual variables in terms of how they are affected by situational factors.

An important general finding of this study is the level of detail at which differences are found in the use of vocabulary: Differences between social groups may appear in one situation and not in another. Adult speech and situational factors have very specific effects on children's internal state word use, and the nature of the effect is dependent on the exact function of the internal state word in question. This has implications for any research that uses the relative frequency of vocabulary items or sets of vocabulary items as a dependent variable. Any word can occur in a number of different functional categories. The word know for example, can be found in reflections (I know the answer), in nonreflections (few of my friends know the answer), and in nonliteral usages (You know, he may be right). Each of these functional categories is affected differently by situational factors and by the speech of others in the environment. A variable simply representing the relative frequency of know would obscure

these functional distinctions, and thus confound the effects of the different factors influencing its usage.

This puts limitations on the value of certain types of computer analysis of texts, since at present it would be impossible to mechanically identify functional categories such as those used to define the dependent variables in this research.

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Appendix A

List of Words of Internal Report

by Four Categories

A. Cognitive

agree
anticipate
assume
aware
believe
blank (draw a blank)
catch (= understand, perceive)
conceivable
concentration
conclusion
conscious
consideration
curious
distracting
dream
expect
feel (I feel it would be best)
figure (out)
follow (I don't follow you = don't understand)
guess
hope
idea
imaginary
imagine
invent
know
make-believe
mind (cross my mind, come to mind)
pick up (= learn)
positive
realize
accept
anticipation
(pay) attention
belief
bet
buy
certain
click
concentrate
concepts
confidence
consider
convinced
dawn (on someone)
doubt
engrossed
experience (v)
figure (I figured it would happen)
find (out)
forget
get (= understand)
head (can't get it out of my head)
ignore
imagination
impression (get the impression, under the impression)
knowledge
make-up
misunderstand
notice
pondering
pretend
reason (v)

Appendix A (Cont'd)

recall
remember
see (= understand, find out)
suppose
suspect
swallow (I can't swallow that)
track (keep track of, lose track of)
wonder
recognize
satisfied
seem (it seems to me)
slip (one's mind)
sure
suspicion
think
thought
understand
view (I view it as . . .)

B. Perceptual

ache
appetite
cold
comfortable
dizzy
exhausted
hear
hungry
look
notice
observe
peep
see
sight
smell
sound
taste
tired
uncomfortable
warm
zonked
appear
beat (= tired)
comfort
comfy
ear
feel
hearing
hurt
nauseous
observation
peek
ravenous
seem
sleepy
sore
starved
thirsty
tough
view
watch

Appendix A (Cont'd)

C. Affective

aback (taken aback)
alarm
agitate
amusing
angry
annoyed
anxious
appreciate
ashamed
attitude
blue
blues
bother
bug
burns (burns me up)
cheer
concern
cross
dejected
delighted
depressed
desperate
desperation
disgust
disillusioning
displease
disturbing
embarrass
encouragement
enjoyment
enthusiasm
exasperated
excited
favorite
feel
flip (= like)
floor (it floored him)
freaking (?)
frighten
frustrating
furious

afraid
alarmed
amazed
anger
annoy
anticipation
appalled
approve
astonished
bear
(can't bear)
bored
bothersome
bummer
care
cheerful
concerned
dazed
delight
delirious
depressing
desperately
disappoint
disgusting
dismal
disturb
down
encourage
enjoy
enthused
envy
exasperating
exciting
fear
fit (throw a fit)
flip (out)
fond
fright
frightened
fumes
fuss

Appendix A (Cont'd)

glad
happy
hateful
hilarious
hysterical
hurt
interest
interesting
irritated
joy
like
look forward to
mad
miserable
mixed up
moody
nuisance
peed (off)
pity
pleasure
prefer
proud
raving
reactions
rejoice
resent
resolve
sad
satisfied
scared
scary
seriously
sickening
shock
shook
sorry
spirit
stun
surprise
surprising
sympathy
tempted
terror
grief
hate
heart (break one's heart, first in my heart, etc.)
hope
infuriating
interested
intimidated
jealous
kicks
lonesome
love
maddening
miss
mood
nervous
passion
piss(ed) (off)
please
possessed
preference
raging
reacting
regret
reluctantly
resolution
respect
sadness
scare
scaredy (cat)
serious
sick (of)
shame
shocked
sorrows
soul
stand (can't stand)
suffer
surprised
sympathetic
tantrum
tense

Appendix A (Cont'd)

thankful
threatening
trust
upset
worried
yellow
threaten
thrilled
unhappy
uptight
worry
zonked

D. Intentions and Desires

aim (to)
choose
deliberately
determined
heart (have one's heart set on)
intend
mean
plan
resolution
tempted
want
willingly
would like
change one's mind
decide
desires
have (half) a mind to
hope
make up one's mind
pick
purpose
resolve
volunteer
willing
wish

Appendix B

Cognitive Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.333 (.229)	.270 (.150)	.304 (.193)	.977 (1.243)	.270 (.321)	.623 (.953)
Black	.353 (.310)	.591 (.437)	.478 (.392)	.262 (.322)	.399 (.368)	.327 (.342)
Column Total	.344 (.267)	.456 (.376)	.400 (.327)	.601 (.934)	.335 (.342)	.471 (.714)
			Primary Caregivers (Mothers and Teachers)			
White	.390 (.340)	.578 (.362)	.484 (.353)	.470 (.300)	.317 (.109)	.394 (.233)
Black	.447 (.366)	.423 (.235)	.435 (.300)	.310 (.173)	.460 (.141)	.381 (.173)
Column Total	.422 (.346)	.492 (.299)	.457 (.320)	.386 (.249)	.388 (.143)	.387 (.201)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Affective Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.286 (.168)	.275 (.120)	.281 (.143)	.250 (.219)	.091 (.156)	.171 (.202)
Black	.564 (.470)	.515 (.387)	.539 (.418)	.128 (.151)	.175 (.275)	.150 (.213)
Column Total	.432 (.379)	.414 (.322)	.423 (.347)	.186 (.191)	.133 (.221)	.160 (.205)
			Primary Caregivers (Mothers and Teachers)			
White	.233 (.186)	.376 (.248)	.304 (.224)	.112 (.105)	.064 (.091)	.088 (.098)
Black	.203 (.170)	.174 (.166)	.188 (.164)	.057 (.061)	.233 (.370)	.140 (.267)
Column Total	.216 (.172)	.263 (.225)	.240 (.199)	.083 (.087)	.149 (.276)	.115 (.202)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Perceptual Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.308 (.330)	.133 (.112)	.226 (.261)	.106 (.110)	.120 (.306)	.113 (.223)
Black	.595 (.617)	.239 (.148)	.409 (.464)	.097 (.146)	.369 (.700)	.226 (.498)
Column Total	.459 (.510)	.195 (.141)	.327 (.393)	.101 (.127)	.244 (.540)	.171 (.388)
			Primary Caregivers (Mothers and Teachers)			
White	.212 (.115)	.163 (.082)	.188 (.100)	.202 (.128)	.137 (.114)	.170 (.122)
Black	.141 (.203)	.118 (.086)	.130 (.152)	.293 (.254)	.228 (.512)	.262 (.387)
Column Total	.173 (.169)	.138 (.085)	.156 (.133)	.250 (.204)	.183 (.363)	.217 (.290)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

CAP Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.927 (.182)	.679 (.251)	.810 (.246)	1.334 (1.321)	.481 (.333)	.907 (1.033)
Black	1.512 (.905)	1.346 (.804)	1.425 (.836)	.486 (.361)	.943 (.772)	.703 (.621)
Column Total	1.235 (.717)	1.065 (.706)	1.150 (.707)	.888 (1.015)	.712 (.624)	.802 (.841)
			Primary Caregivers (Mothers and Teachers)			
White	.836 (.543)	1.117 (.586)	.976 (.565)	.784 (.368)	.518 (.183)	.651 (.314)
Black	.790 (.501)	.715 (.363)	.752 (.427)	.659 (.332)	.921 (.570)	.783 (.466)
Column Total	.810 (.505)	.893 (.503)	.852 (.498)	.719 (.346)	.719 (.460)	.719 (.400)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Intentions and Desires Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	1.248 (1.026)	.897 (.583)	1.083 (.841)	1.922 (3.507)	.966 (.643)	1.444 (2.495)
Black	1.195 (.712)	.937 (.765)	1.060 (.734)	.395 (.441)	.807 (.998)	.590 (.765)
Column Total	1.220 (.850)	.920 (.677)	1.070 (.773)	1.118 (2.485)	.887 (.818)	1.006 (1.849)
			Primary Caregivers (Mothers and Teachers)			
White	.902 (.338)	.753 (.378)	.828 (.355)	.398 (.204)	.343 (.175)	.371 (.187)
Black	.605 (.574)	.534 (.315)	.570 (.452)	.342 (.275)	.480 (.478)	.407 (.380)
Column Total	.737 (.495)	.631 (.352)	.684 (.426)	.368 (.239)	.412 (.356)	.389 (.298)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Reflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	2.175 (1.130)	1.576 (.674)	1.893 (.965)	3.256 (3.686)	1.447 (.567)	2.351 (2.722)
Black	2.707 (1.368)	2.283 (1.393)	2.485 (1.364)	.881 (.662)	1.750 (1.369)	1.293 (1.119)
Column Total	2.455 (1.256)	1.985 (1.176)	2.220 (1.224)	2.006 (2.782)	1.598 (1.029)	1.808 (2.101)
			Primary Caregivers (Mothers and Teachers)			
White	1.738 (.610)	1.869 (.753)	1.804 (.665)	1.183 (.393)	.861 (.275)	1.022 (.369)
Black	1.395 (.733)	1.249 (.558)	1.322 (.638)	1.001 (.543)	1.401 (.853)	1.190 (.716)
Column Total	1.548 (.684)	1.525 (.706)	1.536 (.685)	1.087 (.474)	1.131 (.675)	1.108 (.573)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Nonreflections Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	1.078 (.356)	1.139 (.319)	1.107 (.330)	1.279 (.785)	1.031 (.679)	1.155 (.723)
Black	.969 (.648)	1.377 (.499)	1.183 (.597)	.964 (.715)	.498 (.488)	.743 (.647)
Column Total	1.020 (.519)	1.277 (.439)	1.149 (.491)	1.113 (.745)	.764 (.636)	.943 (.707)
			Primary Caregivers (Mothers and Teachers)			
White	1.548 (.464)	1.831 (.170)	1.689 (.368)	1.661 (.489)	1.476 (.789)	1.568 (.643)
Black	1.347 (.832)	1.865 (.289)	1.606 (.662)	1.776 (.654)	1.660 (.881)	1.721 (.750)
Column Total	1.436 (.682)	1.850 (.238)	1.643 (.545)	1.721 (.568)	1.568 (.817)	1.647 (.695)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Semantic Usages Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	3.253 (1.385)	2.716 (.610)	3.000 (1.094)	4.535 (3.369)	2.477 (1.024)	3.506 (2.637)
Black	3.676 (1.452)	3.660 (1.390)	3.668 (1.383)	1.845 (1.209)	2.248 (1.565)	2.036 (1.365)
Column Total	3.476 (1.398)	3.262 (1.203)	3.369 (1.291)	3.119 (2.771)	2.363 (1.288)	2.751 (2.184)
			Primary Caregivers (Mothers and Teachers)			
White	3.286 (.890)	3.700 (.696)	3.493 (.801)	2.844 (.609)	2.337 (.894)	2.590 (.786)
Black	2.742 (1.149)	3.114 (.580)	2.928 (.907)	2.777 (.952)	3.061 (1.143)	2.911 (1.027)
Column Total	2.984 (1.050)	3.375 (.684)	3.179 (.896)	2.808 (.787)	2.699 (1.063)	2.755 (.920)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Nonliteral Usages Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.421 (.287)	.543 (.322)	.478 (.301)	.375 (.511)	.296 (.410)	.336 (.451)
Black	.337 (.302)	.520 (.497)	.433 (.417)	.127 (.137)	.424 (.433)	.268 (.340)
Column Total	.377 (.290)	.530 (.422)	.453 (.365)	.245 (.376)	.360 (.414)	.301 (.394)
			Primary Caregivers (Mothers and Teachers)			
White	.501 (.306)	.625 (.343)	.563 (.321)	.607 (.403)	.740 (.426)	.674 (.408)
Black	.630 (.517)	.802 (.659)	.716 (.583)	.370 (.296)	.457 (.299)	.411 (.293)
Column Total	.572 (.429)	.723 (.536)	.648 (.485)	.483 (.362)	.598 (.386)	.539 (.373)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Attentional Devices Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	.397 (.218)	.406 (.197)	.401 (.202)	.334 (.289)	1.080 (.798)	.707 (.698)
Black	.289 (.305)	.151 (.135)	.217 (.237)	.420 (.593)	.309 (.601)	.368 (.582)
Column Total	.340 (.266)	.258 (.205)	.299 (.238)	.379 (.463)	.695 (.792)	.533 (.655)
			Primary Caregivers (Mothers and Teachers)			
White	.083 (.060)	.141 (.117)	.112 (.095)	.260 (.171)	.306 (.233)	.283 (.200)
Black	.097 (.141)	.071 (.096)	.084 (.118)	.156 (.193)	.158 (.103)	.157 (.153)
Column Total	.091 (.110)	.102 (.109)	.096 (.108)	.205 (.186)	.232 (.191)	.218 (.186)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Internal State Words Per 100 Words

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	4.136 (1.259)	3.751 (.631)	3.955 (1.003)	5.302 (3.090)	3.972 (1.066)	4.637 (2.344)
Black	4.587 (1.246)	4.425 (1.428)	4.502 (1.314)	2.477 (1.466)	3.012 (2.022)	2.731 (1.723)
Column Total	4.373 (1.238)	4.142 (1.185)	4.257 (1.202)	3.815 (2.724)	3.492 (1.644)	3.658 (2.239)
			Primary Caregivers (Mothers and Teachers)			
White	3.892 (.892)	4.500 (.476)	4.196 (.759)	4.040 (.942)	3.383 (1.132)	3.711 (1.065)
Black	3.509 (1.355)	3.996 (.770)	3.752 (1.101)	3.726 (1.095)	3.830 (.919)	3.775 (.989)
Column Total	3.679 (1.156)	4.220 (.688)	3.950 (.977)	3.875 (1.010)	3.606 (1.027)	3.744 (1.013)

Note. Numbers in parentheses are standard deviations.

Appendix B (Cont'd)

Total Number of Words Spoken

(Group Means)

Race	Home			School		
	Working Class	Middle Class	Row Total	Working Class	Middle Class	Row Total
			Children			
White	2246.556 (690.635)	2103.250 (918.078)	2179.118 (782.738)	585.667 (159.745)	563.111 (110.214)	574.389 (133.640)
Black	1018.900 (451.769)	1957.091 (1007.272)	1510.333 (910.863)	507.700 (293.768)	365.111 (285.362)	440.158 (291.019)
Column Total	1600.421 (843.002)	2018.632 (947.071)	1809.526 (909.385)	544.632 (236.835)	464.111 (233.269)	505.459 (235.385)
			Primary Caregivers (Mothers and Teachers)			
White	2020.875 (885.335)	2687.375 (1456.194)	2354.125 (1214.005)	2294.000 (696.904)	1552.667 (755.174)	1923.333 (801.498)
Black	895.600 (543.165)	2530.800 (1758.847)	1713.200 (1519.462)	1539.300 (549.128)	1443.444 (704.226)	1493.895 (611.231)
Column Total	1395.722 (899.991)	2600.389 (1586.605)	1998.056 (1410.421)	1896.789 (718.689)	1498.056 (710.570)	1702.811 (733.149)

Note. Numbers in parentheses are standard deviations.

Footnotes

The research on which this paper is based was supported by a grant from the Carnegie Corporation of New York. The preparation of this manuscript was supported by the National Institute of Education under Contract No. HEW-NIE-C-400-76-0116.

[1]The phrase internal state words will be used to refer to this dependent variable, that is, the number of internal state words (of all categories) used by a speaker divided by the total number of words spoken by that speaker. Context should always make it clear when the variable is intended.

[2]It is impossible to determine a priori the actual effect of these factors on the similarity between children and the adults in their environment for any given aspect of speech. Since the target children in our study are at an age (4½ to 5 years old) at which they are still in the process of mastering certain internal state concepts (cf. Wellman & Johnson, 1979), they cannot be expected to accurately immitate all of the internal state word use of the adults around them. Similarly, to the extent that children share the same general conversational subject matter with their mothers, teachers, and other adults (which is generally the case in the conversations included in our corpus of data), one would expect this shared subject matter to produce similarities between adults and children in their patterns of internal state word use. On the other hand, adults might approach the same subject matter in a different way, or in terms of a

different role in the conversation, which would influence the way they used internal state words and would tend to preclude similarity between their speech and the target children's speech.

[3]The within-situation correlations, discussed in the previous section, are repeated here under the heading "School" for the purposes of comparison.

Table 1

Examples from the Corpus Representing

Subcategories of Semantic Usages

A. Reflections

1. Cognitive Reflections

I don't know what you're saying.
I don't remember the name of the book.
I forget his name.
Do you understand him?

2. Affective Reflections

I don't like to fly with you, silly.
I don't like this painting.
I don't care.
Mom, how do you like my star and my planet?
I'm sorry that we have to wait.
I love cottage cheese.
Yeah, man, I like these.
Why? You scared?
I hate these things, I hate to work with them.

3. Perceptual Reflections

Are you hungry?
What are the people carrying in their hands? Can you see anything that they're carrying?
Didn't you hear what I said, huh?
Tastes very good.
I can smell the peanuts.
Can you hear this?
Man, I'm starving.
I see it, I see it.

4. Intentions and Desires Reflection

Because I want to.
Would you like to also use some letters here?
I wanna see if we have more boys than girls.

Table 1 (Cont'd)

I don't want to.
I hope that ain't hot.
Want to cut some more?
What would you like to do?
I wish you were hungry.

B. Nonreflections

1. Cognitive Nonreflections

I don't want to think about that, okay?
We'll figure it out on Saturday, okay? Not now.
You know what shoes they are.
They feel it would be too much of a financial burden.
You forgot somebody's name, you forgot one name there.
Come here and try to guess where I am.
Most of the time when you know what you're doing, you don't starve to death or take the wrong kinds of food.

2. Affective Nonreflections

What do you think all those people are happy about?
There's nothing to worry about.
Kate loves me.
Yeah, you didn't even care.
You look like you're awfully proud of yourself with that smile.
How did you enjoy being in school with all the kids today?
Why should they be upset?
She's excited about it.
They really said their own feelings, they couldn't care less about the tape being on.

3. Perceptual Nonreflections

Let's take a look at this one.
Thanks for listening to me.
Fine, you can watch.
But when you saw, you just slammed the door in my face.
Ya take your fingers out of your mouth you'll hear me better.
Say it loudly so everyone hears you.
I was just looking at a stamp and it's a Czechoslovakian stamp.
Let's listen to it.

Table 1 (Cont'd)

I wasn't looking.
You saw it?
You gotta taste those.
I wanna see which one you put in.
If you get tired of watching you can choose something else to do.
Listen to me.
He's not hungry.

4. Intentions and Desires Nonreflections

He wants me to do it.
The teacher said she don't want it.
If you want to work with wood, come over here.
If you get tired of waiting you can choose something else to do.
He decided to paint on this easel.
They also want to learn about speech and how it develops.
Will you make up your mind what you're sayin?

Table 2

Means, Standard Deviations, and Ranges of

Number of Words and Turns by Principal Speakers

Person	Number of Words			Number of Turns		
	M	SD	Range	M	SD	Range
			Dinner			
Target Children	1809.53	909.38	230-3810	314.43	153.30	54-770
Mothers	1998.06	1410.42	23-4955	272.61	174.11	5-714
			Directed Activity			
Target Children	505.46	235.38	17-969	110.81	51.97	8-209
Teachers	1702.81	733.15	436-2667	193.65	85.45	60-472

Table 3

Main Effects of Situation on Internal State Word Variables

Variable	Speakers		
	Target Children (df = 1,32)	Teachers and Mothers (df = 1,64)	All Adults in Environment (df = 1,67)
Cognitive Reflections	$F < 1$	$F < 1$	$F = 8.25^{**a}$
Affective Reflections	$F = 28.96^{**a}$	$F = 12.91^{**a}$	$F = 24.93^{**a}$
Perceptual Reflections	$F = 8.29^{**a}$	$F < 1$	$F < .1$
CAP Reflections	$F = 5.16^{*a}$	$F < 1$	$F = 18.33^{**a}$
Intentions and Desires Reflections	$F = 2.92$	$F = 16.42^{**a}$	$F = 12.19^{**a}$
All Reflections	$F = 3.47$	$F = 13.45^{**a}$	$F = 20.75^{**a}$
Nonreflections	$F = 5.53^{*a}$	$F < 1$	$F < 1$
Semantic Usages	$F = 5.04^{*a}$	$F = 8.11^{**a}$	$F = 9.11^{**a}$
Attentional Devices	$F < 1$	$F = 11.07^{**b}$	$F = 6.93^{*b}$
Nonliteral Usages	$F = 10.59^{**a}$	$F < 1$	$F = 12.37^{**a}$
All Internal State Words	$F = 4.12$	$F = 2.91$	$F = 6.40^{*a}$

[a]Home mean is greater than school mean.

[b]School mean is greater than home mean.

$^{*}p < .05$

$^{**}p < .01$

Table 4

Interactions Involving Situation on Internal State Word Variables

Variable	Speaker								
	Target Children (df = 1,32)			Mothers and Teachers (df = 1,64)			All Adults (df = 1,67)		
	Race	SES	Race & SES	Race	SES	Race & SES	Race	SES	Race & SES
Cognitive Reflections	1.83	1.73	1.03	<1	<1	3.53	<1	<1	2.77
Affective Reflections	2.71	<1	<1	2.34	<1	6.71*	<1	<1	7.82**
Perceptual Reflections	<1	2.37	<1	1.69	2.55	<1	<1	2.15	1.43
CAP Reflections	3.63	<1	1.92	1.42	<1	5.43*	<1	<1	3.84
Intentions and Desires Reflections	3.28	1.34	<1	<1	<1	<1	1.26	<1	<1
All Reflections	5.94*	<1	3.16	3.64	<1	4.60*	1.55	<1	3.64
Nonreflections	2.73	4.63*	1.71	<1	3.72	<1	<1	2.92	<1
Semantic Usages	9.22**	<1	1.65	2.85	<1	2.25	<1	<1	1.62
Attentional	1.92	1.68	3.41	<1	<1	<1	2.59	<1	<1
Nonliteral Usages	<1	<1	1.51	4.08*	<1	<1	4.46*	<1	<1
All Internal State Words	13.11**	<1	<1	<1	2.28	2.60	<1	2.13	1.47

*$p < .05$

**$p < .01$

Table 5

Race and SES Main Effects and Interactions

Variable	Speaker								
	Target Children (df = 1,32)			Teachers and Mothers (df = 1,64)			All Adults (df = 1,67)		
	Race	SES	Race & SES	Race	SES	Race & SES	Race	SES	Race & SES
Cognitive Reflections	<1	<1	3.99	<1	1.15	<1	<1	<1	1.68
Affective Reflections	<1	<1	<1	<1	<1	<1	<1	<1	<1
Perceptual Reflections	2.04	1.09	<1	1.08	2.35	<1	<1	6.50*[b]	<1
CAP Reflections	<1	1.32	3.74	<1	<1	<1	<1	<1	<1
Intentions and Desires Reflections	2.34	<1	<1	2.80	<1	<1	5.86*[a]	<1	<1
All Reflections	<1	1.20	2.45	<1	<1	<1	<1	<1	1.30
Nonreflections	2.02	<1	<1	<1	<1	<1	1.27	<1	<1
Semantic Usages	1.80	1.33	1.78	<1	<1	<1	<1	<1	1.51
Attentional Devices	13.94**[a]	1.29	4.93*	4.77*[a]	<1	<1	1.78	<1	<1
Nonliteral Usages	<1	<1	1.69	<1	<1	<1	2.77	3.04	<1
All Internal State Words	4.34*[a]	<1	<1	<1	<1	<1	<1	<1	<1

[a] White mean is greater than black mean.

[b] Working-class mean is greater than middle-class mean.

* $p < .05$

** $p < .01$

Table 6

Within-Situation Effects of Race and SES at Home

Variable	Speaker								
	Target Children (df = 1,34)			Mothers (df = 1,31)			All Adults (df = 1,34)		
	Race	SES	Race & SES	Race	SES	Race & SES	Race	SES	Race & SES
Cognitive Reflections	1.97	1.13	1.66	<1	<1	<1	1.05	<1	<1
Affective Reflections	2.41	<1	<1	2.48	<1	2.62	<1	<1	4.32*
Perceptual Reflections	2.56	3.82	<1	3.34	<1	<1	1.67	1.60	1.47
CAP Reflections	6.14*[a]	<1	<1	<1	<1	2.06	<1	<1	<1
Intentions and Desires Reflections	<1	1.93	<1	3.99	<1	<1	12.4**[b]	<1	<1
All Reflections	2.62	2.27	<1	3.87	<1	1.15	2.60	<1	<1
Nonreflections	<1	2.74	1.50	<1	3.69	<1	1.76	8.92**[c]	<1
Semantic Usages	2.59	<1	<1	2.89	1.11	<1	<1	2.85	<1
Attentional Devices	9.10**[b]	<1	<1	1.30	<1	1.37	<1	<1	1.31
Nonliteral Usages	<1	<1	<1	<1	<1	<1	<1	2.16	<1
All Internal State Words	1.94	<1	<1	1.01	2.08	1.26	<1	3.85	<1

[a] Black mean is greater than white mean.

[b] White mean is greater than black mean.

[c] Middle-class mean is greater than working-class mean.

* $p < .05$

** $p < .01$

Table 7

Within-Situation Effects of Race and SES at School

Variable	Speakers								
	Target Children (df = 1,33)			Teachers (df = 1,33)			All Adults (df = 1,33)		
	Race	SES	Race & SES	Race	SES	Race & SES	Race	SES	Race & SES
Cognitive Reflections	<1	<1	2.81	<1	<1	4.17*	<1	<1	4.01
Affective Reflections	<1	1.43	1.23	<1	<1	4.21*	<1	<1	3.53
Perceptual Reflections	<1	<1	1.31	<1	4.24*[b]	<1	<1	4.86*[b]	<1
CAP Reflections	<1	<1	4.20*	1,01	<1	3.80	<1	<1	3.24
Intentions and Desires Reflections	3.63	<1	<1	<1	<1	<1	<1	<1	<1
All Reflections	3.68	<1	3.96	<1	<1	3.87	<1	<1	3.41
Nonreflections	3.02	2.19	<1	<1	<1	<1	<1	<1	<1
Semantic Usages	5.88*[a]	<1	2.45	<1	<1	1.79	<1	<1	1.81
Attentional Devices	5.56*[a]	<1	3.22	3.74	<1	<1	3.31	<1	<1
Nonliteral Usages	<1	<1	2.03	5.25*[a]	<1	<1	5.64*[a]	1.13	<1
All Internal State Words	9.03**[a]	<1	1.04	<1	<1	1.46	<1	<1	1.42

[a] White mean is greater than black mean.

[b] Working-class mean is greater than middle-class mean

* $p < .05$

** $p < .01$

Table 8

Within-Situation Correlations Between the Target Child and Different Measures of the Linguistic Environment

Internal State Word Use Variable	Situation					
	School			Home		
	Teacher Only (N = 37)	Adults (N = 37)	All Speakers (N = 37)	Mother Only (N = 35)	Adults (N = 38)	All Speakers (N = 38)
Cognitive Reflections	.280	.271	.300	.217	.605**	.611**
Affective Reflections	.491**	.496**	.501**	.311	.519**	.555**
Perceptual Reflections	.162	.170	.361*	.035	.239	.434**
CAP Reflections	.398**	.424**	.433**	.177	.441**	.547**
Intentions and Desires Reflections	.348*	.304	.493**	-.033	.211	.376**
All Reflections	.343*	.329*	.414**	-.065	.177	.387**
Nonreflections	-.244	-.243	-.245	-.193	.108	.063
Semantic Usages	-.004	.002	.000	-.100	.219	.355**
Attentional Devices	-.037	-.052	.183	-.131	.056	.043
Nonliteral Usages	.184	.176	.182	.331	.250	.318
All Internal State Words	.048	.049	.048	-.196	.078	.237

*$p < .05$, two-tailed

**$p < .01$, two-tailed

Table 9

Across-Situation Correlations between the Target Child and Different Measures of the Linguistic Environment

Internal State Word Use Variable	Situation					
	Target Child at Home			Target Child at School		
	Teacher Only (N = 33)	Adults at School (N = 36)	All Speakers at School (N = 36)	Mother Only (N = 36)	Adults At Home (N = 36)	Speakers At Home (N = 36)
Cognitive Reflections	.366*	.378*	.349*	-.031	.212	.193
Affective Reflections	.296	.292	.297	-.174	-.006	.072
Perceptual Reflections	.078	.095	.010	.000	-.057	-.171
CAP Reflections	.099	.114	.209	-.055	.214	.132
Intentions and Desires Reflections	-.073	-.063	.059	.074	.092	.088
All Reflections	.046	.026	.099	.040	.116	.048
Nonreflections	-.154	-.104	-.177	-.232	-.287	-.267
Semantic Usages	.181	.177	.247	.002	.037	-.066
Attentional Devices	.262	.223	.114	.024	-.115	-.109
Nonliteral Usages	.157	.123	.000	.183	.303	.380*
All Internal State Words	.326	.330*	.300	-.067	.076	.026

*p < .05, two-tailed

**p < .01, two-tailed

Table 10

Correlations of Target Child's Internal State Word Use with Internal State Word Use of Adults at Home

Target Child's Variables	Variables Representing Internal State Word Use by All Adults at Home					
	Reflections	Non-reflections	Semantic Usages	Attentional Devices	Nonliteral Usages	Internal State Words
Cognitive Reflections	.161	.207	.299	-.124	.097	.116
Affective Reflections	.291	.008	.278	-.020	.064	.265
Perceptual Reflections	.258	-.213	.076	.019	-.425**	-.167
Intentions and Desires Reflections	.036	.000	.004	-.006	-.372*	-.218
All Reflections	.177	-.030	.120	-.041	-.381*	-.132
Nonreflections	.181	.108	.236	-.277	.266	.294
Semantic Usages	.249	.016	.219	-.153	-.232	.016
Attentional Devices	.317	-.268	.095	.056	.048	.131
Nonliteral Usages	-.035	.070	.009	-.282	.250	.103
All Internal State Words	.227	.001	.191	-.134	-.113	.078

Note. $N = 38$.

*$p < .05$, two-tailed

**$p < .01$, two-tailed

Table 11

Correlations of Target Child's Internal State Word Use

With Internal State Word Use of Adults at School

Target Child's Variables	Variables Representing Internal State Word Use by All Adults at School					
	Reflections	Non-reflections	Semantic Usages	Attentional Devices	Nonliteral Usages	Internal State Words
Cognitive Reflections	.083	-.035	.004	-.057	.296	.066
Affective Reflections	.404*	-.050	.198	.167	-.336*	.194
Perceptual Reflections	.272	.093	.216	-.304	-.239	.127
Intentions and Desires Reflections	.150	-.176	-.052	.261	.176	.108
All Reflections	.329*	-.107	.089	.137	.190	.219
Nonreflections	-.080	-.243	-.231	-.272	-.228	-.175
Semantic Usages	.283	-.187	.002	.012	.093	.141
Attentional Devices	-.071	-.086	-.101	-.052	.256	-.145
Nonliteral Usages	.113	-.082	-.009	-.213	.176	-.151
All Internal State Words	.246	-.261	-.074	-.010	.184	.049

Note. N = 37

*p < .05, two-tailed

**p < .01, two-tailed

Table 12

Correlations by Racial Group Between Internal State Word Use by Target Children at Home and Adults in Home Environment

Variable	Whites (N = 17)	Blacks (N = 19)	z
Cognitive Reflections	.804**	.493*	1.56
Affective Reflections	.645**	.653**	.04
Perceptual Reflections	.392	.269	.38
Intentions and Desires Reflections	.211	.364	.46
All Reflections	-.193	.598*	2.42*
Nonreflections	.014	.102	.24
Semantic Usages	-.073	.560*	1.93
Attentional Devices	.008	-.057	.18
Nonliteral Usages	.212	.290	.23
Internal State Words	-.202	.357	1.58

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 13

Correlations by Racial Group Between Internal State Word Use of Target Children at School and Adults in Their School Environments

Variable	Whites (N = 17)	Blacks (N = 19)	Z
Cognitive Reflections	.547*	-.110	1.98*
Affective Reflections	.480	.553*	.27
Perceptual Reflections	-.035	.250	.79
Intentions and Desires Reflections	.527*	.220	.99
All Reflections	.513*	.316	.65
Nonreflections	.192	-.583*	2.35*
Semantic Usages	.498*	-.281	2.28*
Attentional Devices	.145	-.568*	2.16*
Nonliteral Usages	.306	.083	.64
Internal State Words	.490*	-.288	2.27*

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 14

Correlations by Racial Group Between Target Children's Internal State Word Use at Home and at School

Variable	Whites (N = 17)	Blacks (N = 19)	z
Cognitive Reflections	.108	.005	.28
Affective Reflections	.021	.434	1.21
Perceptual Reflections	.045	-.261	.85
Intentions and Desires Reflections	.705**	-.202	2.96*
All Reflections	.613**	-.422	3.18**
Nonreflections	-.273	.228	1.40
Semantic Usages	.699**	-.081	2.59**
Attentional Devices	.338	-.145	.56
Nonliteral Usages	.342	.284	.18
Internal State Words	.714**	.013	2.44*

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 15

Correlations by SES Group Between Internal State Word Use of Target Children at Home and Adults in the Home

Variable	Middle Class (N = 17)	Working Class (N = 19)	z
Cognitive Reflections	.590**	.647**	.25
Affective Reflections	.629**	.590**	.17
Perceptual Reflections	.272	.145	.36
Intentions and Desires Reflections	.298	.234	.19
All Reflections	.296	.162	.39
Nonreflections	-.203	-.013	.53
Semantic Usages	.575*	.165	1.33
Attentional Devices	-.356	.075	1.22
Nonliteral Usages	.154	.326	.50
Internal State Words	.368	.072	.86

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 16

Correlations by SES Group Between Internal State Word Use of Target Children at School and Adults in School Environment

Variable	Middle Class (N = 17)	Working Class (N = 19)	z
Cognitive Reflections	.257	.306	.15
Affective Reflections	.624**	.434**	.27
Perceptual Reflections	.398	-.285	1.95
Intentions and Desires Reflections	.392	.262	.40
All Reflections	.521*	.240	.91
Nonreflections	-.220	-.352	.39
Semantic Usages	.095	-.084	.49
Attentional Devices	-.058	-.154	.27
Nonliteral Usages	.193	.146	.13
Internal State Words	-.041	.191	.39

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 17

Correlations by SES Group Between the Home and School Internal State Word Use of the Target Children

Variable	Middle Class (N = 17)	Working Class (N = 19)	z
Cognitive Reflections	.301	-.097	1.11
Affective Reflections	.503*	.059	1.35
Perceptual Reflections	-.075	-.206	.78
Intentions and Desires Reflections	-.030	.575**	1.87
All Reflections	-.073	.051	.34
Nonreflections	.242	.086	.44
Semantic Usages	.227	.007	.64
Attentional Devices	.546*	-.101	1.95
Nonliteral Usages	.112	.565**	1.44
Internal State Words	.299	-.002	.85

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 18

Correlations Among Indices of Situational Factors at Home

	MOISWCH	ALISWTC	MOISWTC	NADULTS	EXTURNS	ADTURNS	MOTURNS
TCTURNS	.546*	.810*	.910*	-.277	-.073	.113	.500*
MOTURNS	.280	.489*	.662*	-.581*	-.545*	.269	
ADTURNS	-.142	.040	.104	-.072	.015		
EXTURNS	-.500*	-.224	-.478*	-.164			
NADULTS	.027	-.193	-.296				
MOISWTC	.679*	.873*					
ALISWTC	.642*						

Note. TCTURNS = Percent of turns spoken by target child;
MOTURNS = Percent of turns spoken by mother;
ADTURNS = Percent of turns spoken by adults;
EXTURNS = Percent of turns spoken by experimenter;
NADULTS = Number of adults present at dinner;
MOISWTC = Percent of mother's internal state words addressed to target child;
ALISWTC = Percent of all speakers' internal state words addressed to target child;
MOISWCH = Percent of mother's internal state words addressed to children.

*$p < .05$, two-tailed

Table 19

Correlations Among Indices of Situational Factors at School

	TEISWGR	TEISWCH	ALISWTC	TEISWTC	TETURNS
TCTURNS	-.271	-.093	.552*	.591*	-.250
TETURNS	.081	.081	.208	.052	
TEISWTC	-.621*	.117	.907*		
ALISWTC	-.516*	.162			
TEISWCH	.076				

Note. TCTURNS = Percent of turns spoken by target child;

TETURNS = Percent of turns spoken by teacher;

TEISWTC = Percent of teacher's internal state words addressed to target child;

ALISWTC = Percent of all speakers' internal state words addressed to target child;

TEISWCH = Percent of teacher's internal state words addressed to children;

TEISWGR = Percent of teacher's internal state words addressed to children as a group (as opposed to children individually).

* $p < .05$, two-tailed.

Table 20

Correlations of Target Child's Internal State Word Use With Percentage of Internal State Words Addressed to Target Child by Primary Caregivers and All Speakers

Target Child's Variable	Situation			
	Home		School	
	Mother (N = 35)	All Speakers (N = 38)	Teacher (N = 37)	All Speakers (N = 37)
Cognitive Reflections	.113	-.072	.198	.289
Affective Reflections	-.053	-.145	-.040	-.103
Perceptual Reflections	-.179	-.144	.078	.147
Intentions and Desires Reflections	-.127	-.167	.009	-.125
All Reflections	-.190	-.268	.092	.036
Nonreflections	.002	-.247	.258	.161
Semantic Usages	-.211	-.363*	.185	.098
Attentional Devices	.403*	.246	.396*	.324
Nonliteral Usages	.212	.118	.396*	.378*
All Internal State Words	-.195	-.314	.350*	-.240

* $p < .05$, two-tailed

Table 21

Correlations of Target Child's Internal State Word Use With Measures of Child-Centeredness and Group Orientation in Primary Caregiver's Speech

Target Child Internal State Word Use Variable	Percentage of Internal State Words Addressed to		
	Children by Mother (N = 35)	Children by Teacher (N = 37)	Group vs. Individual by Teacher (N = 37)
Cognitive Reflections	-.098	-.003	-.050
Affective Reflections	-.109	-.141	-.003
Perceptual Reflections	-.321	.154	.038
Intentions and Desires Reflections	.012	.191	.005
All Reflections	-.180	.122	.036
Nonreflections	.009	.023	-.196
Semantic Usages	-.185	.122	-.057
Attentional Devices	.322	.064	-.425**
Nonliteral Usages	-.095	-.228	-.406*
All Internal State Words	-.177	.079	-.213

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 22

Correlations of Target Child's Internal State Word Use with Indices of Conversational Structure at Home

Target Child Internal State Word Use	Indices of Conversational Structure					
	Number of Turns by Child (N=38)	Percent of Turns by				Number of Adults (N=38)
		Child (N=38)	Mother (N=35)	Adults (N=38)	Experimenter (N=38)	
Cognitive Reflections	.170	.118	.047	.248	.082	.052
Affective Reflections	.032	-.116	.104	-.096	.079	-.274
Perceptual Reflections	-.257	-.099	-.121	-.475**	.256	-.165
Intentions and Desires Reflections	.014	-.229	-.084	-.452**	-.137	-.003
All Reflections	-.050	-.222	-.091	-.439**	.074	-.102
Nonreflections	.283	.096	-.044	.064	.032	-.142
Semantic Usages	.026	-.199	-.132	-.404*	.104	-.144
Attentional Devices	.058	.344*	.273	.113	-.237	-.050
Nonliteral Usages	.204	.233	.312	.303	-.017	-.169
All Internal State Words	.001	-.152	.078	-.346*	.124	-.138*

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 23

Correlations of Target Child's Internal State Word Use with Indices of Conversational Structure at School

Target Child Internal State Word Use	Indices of Conversational Structure		
	Number of Turns by	Percentage of Turns by	
	Target Child (N = 37)	Target Child (N = 37)	Teacher (N = 37)
Cognitive Reflections	.376*	.296	.118
Affective Reflections	.147	.181	-.365*
Perceptual Reflections	-.105	.171	.192
Intentions and Desires Reflections	.106	.012	-.470**
All Reflections	.192	.154	-.237
Nonreflections	.473**	.465**	-.380*
Semantic Usages	.332*	.293	-.340*
Attentional Devices	.104	.378*	-.253
Nonliteral Usages	.295	.364*	.052
Internal State Words	.351*	.423**	-.357*

*$p < .05$, two-tailed

**$p < .01$, two-tailed

Table 24

Comparing Correlations between Target Children's Internal State Word Use at School with Indices of Conversational Structure at Home and at School

Target Child Internal State Word Use	Indices of Conversational Structure					
	Percent of Primary Caregiver's Internal State Words Addressed to				Percent of Internal State Words by all Speakers Addressed to Target Child	
	Target Child		Children			
	Home	School	Home	School	Home	School
Cognitive Reflections	.181	.198	.221	.003	.127	.289
Affective Reflections	-.173	-.040	-.179	-.141	-.287	-.103
Perceptual Reflections	.073	.078	.040	.154	-.020	.147
Intentions and Desires Reflections	.053	.009	.042	.191	-.135	-.125
All Reflections	.014	.092	.091	.122	-.107	.036
Nonreflections	.531**	.258	.400*	.023	.294	.161
Semantic Usages	.185	.185	.217	.122	-.008	.098
Attentional Devices	.244	.396*	.433**	.064	.326*	.324
Nonliteral Usages	.218	.396*	.165	-.228	.174	.378*
All Internal State Words	.291	.350*	.373*	.079	.124	-.240

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 25

Comparing Correlations between Target Children's Internal State Word Use at School with Indices of Conversational Structure at Home and at School

Target Child Internal State Word Use	Indices of Conversational Structure					
	Number of Turns by Child		Percent of Turns by Child		Percent of Turns by Primary Caregiver	
	Home	School	Home	School	Home	School
Cognitive Reflections	.031	.376*	.231	.296	.072	.118
Affective Reflections	.149	.147	.016	.181	-.233	-.365*
Perceptual Reflections	.176	-.105	.113	.171	.086	.192
Intentions and Desires Reflections	.126	.106	.014	.012	-.035	-.470*
All Reflections	.147	.192	.114	.154	-.060	-.237
Nonreflections	.063	.473**	.413**	.465*	.213	-.380*
Semantic Usages	.162	.332*	.243	.293	.011	-.340*
Attentional Devices	-.042	.104	.290	.378*	.047	-.253
Nonliteral Usages	.179	.295	.222	.364*	.201	.052
All Internal State Words	.172	.351*	.356*	.423*	.062	-.357*

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 26

Correlations Between Target Children's Internal State Word Use at School with Indices of Conversational Structure at Home

Target Child Internal State Word Use	Indices of Conversational Structure		
	Number of Adults Present at Dinner	Percent of Turns at Dinner Spoken by	
		Experimenter	Adults
Cognitive Reflections	.298	-.059	-.007
Affective Reflections	.072	.068	.152
Perceptual Reflections	-.108	.085	.105
Intentions and Desires Reflections	.107	-.184	-.155
All Reflections	.182	-.160	-.105
Nonreflections	-.037	-.253	.214
Semantic Usages	.164	-.236	-.032
Attentional Devices	.014	-.124	.106
Nonliteral Usages	-.007	-.291	.170
All Internal State Words	.149	-.286	.029

* $p < .05$, two-tailed

** $p < .01$, two-tailed

Table 27

Results of Situation x Race x SES and Race x SES (Within-Situation) ANOVAs on Percentage of Internal State Words by All Speakers Addressed to Target Child

Effect	F	df	p
a. Situation x Race x SES			
Situation (A)	11.02	1,64	<.01
Race (B)	19.02	1,64	<.01
SES (C)	<1	1,64	
A x B	<1	1,64	
A x C	<1	1,64	
B x C	3.00	1,64	<.10
A x B x C	4.62	1,64	<.05
b. Race x SES (Home)			
Race (A)	6.87	1,34	<.05
SES (B)	<1	1,34	
A x B	<1	1,34	
c. Race x SES (School)			
Race (A)	8.81	1,33	<.01
SES (B)	<1	1,33	
A x B	9.22	1,33	<.01

Table 28

Results of Situation x Race x SES and Race x SES (Within-Situation) ANOVAs on Percentage of Internal State Words by Primary Caregivers Addressed to Target Child

Effect	F	df	p
a. Situation x Race x SES			
Situation (A)	5.74	1,64	<.05
Race (B)	23.44	1,64	<.01
SES (C)	<1	1,64	
A x B	<1	1,64	
A x C	<1	1,64	
B x C	1.95	1,64	>.10
A x B x C	<1	1,64	
b. Race x SES (Home)			
Race (A)	10.99	1,31	<.01
SES (B)	<1	1,31	
A x B	<1	1,31	
c. Race x SES (School)			
Race (A)	13.09	1,33	<.01
SES (B)	2.11	1,33	>.10
A x B	3.37	1,33	<.10

Table 29

Results of Situation x Race x SES and Race x SES (Within-Situation) ANOVAs on Percentage of Primary Caregiver's Internal State Words Addressed to Children

Effect	F	df	p
a. Situation x Race x SES			
Situation (A)	44.41	1,64	<.01
Race (B)	11.81	1,64	<.01
SES (C)	<1	1,64	
A x B	11.88	1,64	<.01
A x C	<1		
B x C	<1		
A x B x C	<1		
b. Race x SES (Home)			
Race (A)	13.73	1,31	<.01
SES (B)	<1	1,31	
A x B	<1	1,31	
c. Race x SES (School)			
Race (A)	<1	1,33	
SES (B)	<1	1,33	
A x B	1.13	1,33	>.10

Table 30

Within-Situation ANOVAs on Variables Reflecting the Distribution of Turns Among Speakers

	Situation					
	Home			School		
	Race	SES	Race X SES	Race	SES	Race X SES
Number of Turns by Target Child	$F(1,34) = 1.40$	$F(1,34) = 2.60$	$F(1,34) = 3.72$	$F(1,33) = 3.84$	$F(1,33) < 1$	$F(1,33) < 1$
Percentage of Turns by Target Child	$F(1,34) = 2.50$	$F(1,34) < 1$	$F(1,34) < 1$	$F(1,31) < 1$	$F(1,31) < 1$	$F(1,31) < 1$
Percentage of Turns by Primary Caregiver	$F(1,31) = 8.75$**	$F(1,31) = 1.18$	$F(1,31) < 1$	$F(1,33) = 1.53$	$F(1,33) < 1$	$F(1,33) = 4.99$**
Percentage of Turns at Home Spoken by Adults	$F(1,31) < 1$	$F(1,31) = 1.91$	$F(1,31) < 1$	---	---	---
Number of Adults Taking Part in Dinner Conversation	$F(1,34) < 1$	$F(1,34) < 1$	$F(1,34) < 1$	---	---	---
Percentage of Turns by Experimenter	$F(1,34) = 60.03$**	$F(1,34) = 2.55$	$F(1,34) = 1.08$	---	---	---

* $p < .05$

** $p < .01$

Table 31

Within-Situation Effects of Age

Variable	Situations			
	Home (df = 1,68)		School (df = 1,66)	
	F	p	F	p
Cognitive Reflections	7.80	<.01[a]	<1	
Affective Reflections	1.86		<1	
Perceptual Reflections	3.65		3.87	
CAP Reflections	<1		<1	
Intentions and Desires Reflections	13.39	<.01[b]	3.36	
All Reflections	8.02	<.01[b]	3.12	
Nonreflections	29.43	<.01[a]	20.70	<.01[a]
Semantic Usages	<1		<1	
Attentional Devices	20.03	<.01[b]	2.45	
Nonliteral Usages	19.59	<.01[a]	11.16	<.01[a]
Internal State Words	<1		<1	

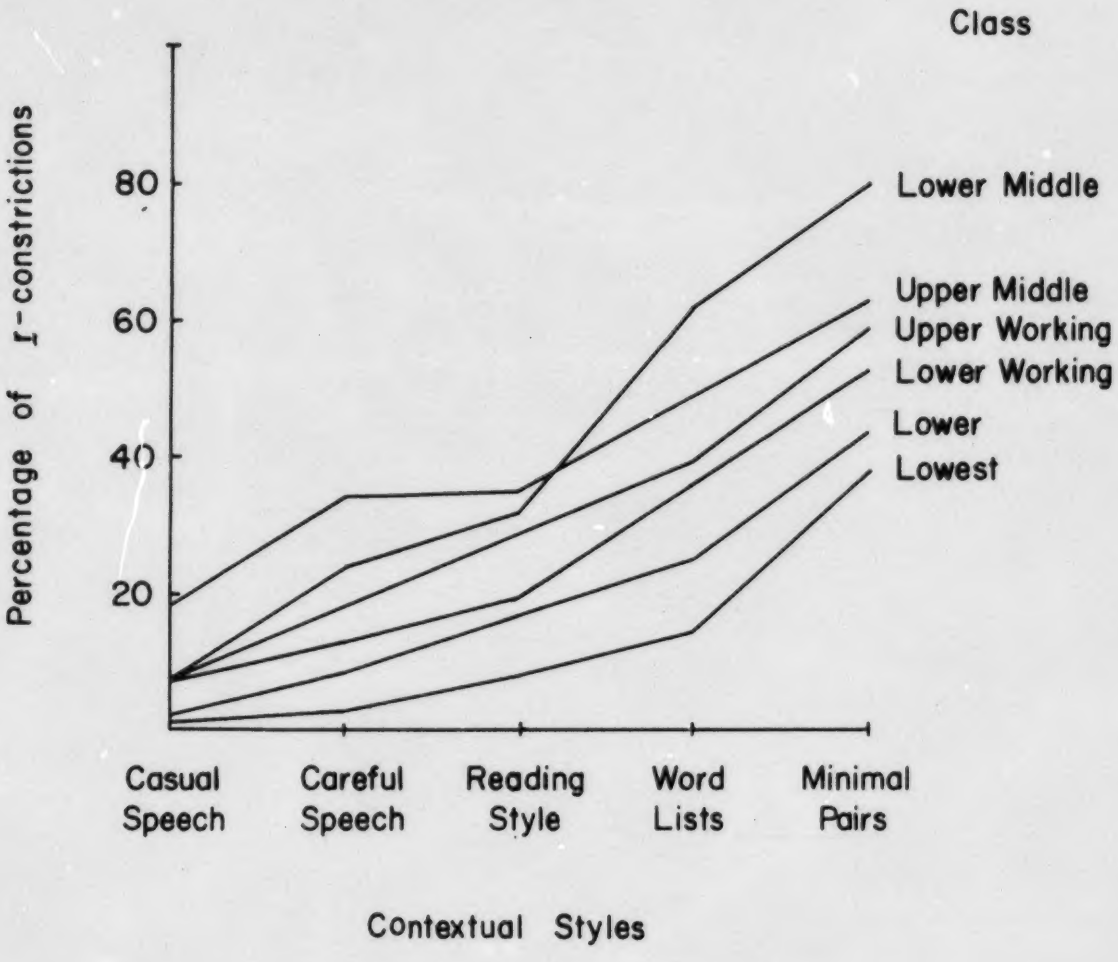
[a]Adult mean greater than child mean.

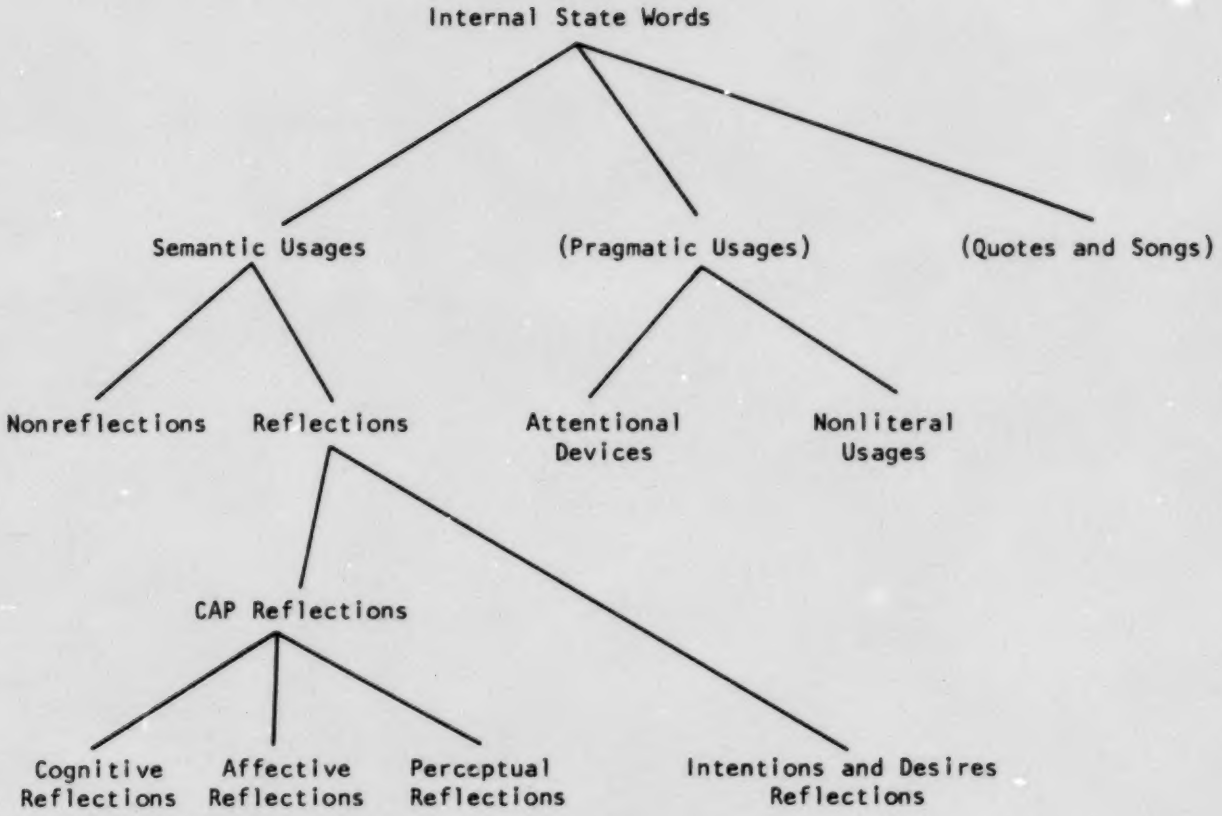
[b]Child mean greater than adult mean.

Figure Captions

Figure 1. Use of r-constriction in New York City by SES and speech style. (From Labov, 1964, p. 171)

Figure 2. Class-inclusion relationships among internal state word variables. (Categories in parentheses are not used as dependent variables in the analyses.)


Class
Percentage of r-constrictions
80
60
40
20
Lower Middle
Upper Middle
Upper Working
Lower Working
Lower
Lowest
Casual Speech
Careful Speech
Reading Style
Word Lists
Minimal Pairs
Contextual Styles


Internal State Words
Semantic Usages
(Pragmatic Usages)
(Quotes and Songs)
Nonreflections
Reflections
Attentional Devices
Nonliteral Usages
CAP Reflections
Cognitive Reflections
Affective Reflections
Perceptual Reflections
Intentions and Desires Reflections

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